



PRELIMINARY ASSESSMENT

RAINBOW CLEANERS – CANYON BLVD (FORMER)
516 S Canyon Blvd.
John Day, Grant County, Oregon
EPA ID No. ORN001002976

February 23, 2012

Prepared by:

Katie Robertson

Katie Robertson, R.G.
Project Geologist
Oregon Department of Environmental Quality



Prepared for:

Joanne LaBaw (M/S ECL-115)
Assessment & Brownfields Unit
EPA Region 10, Suite 900
1200 Sixth Avenue, Seattle, WA 98101

GENERAL SITE DATA

CERCLIS No.: ORN001002976

Site Name: Rainbow Cleaners – Canyon Blvd. (Former)

Site Address: 516 S Canyon Blvd., John Day, Oregon

County: Grant County

Legal Description: Township 26S, Range 31E, NE1/4 SW1/4 Section 26
Tax lot: 100, Grant County, Oregon

Latitude: North 44 degrees, 24 minutes, and 34.2 seconds

Longitude: West 118 degrees, 57 minutes, and 5.4 seconds

Congressional District: Oregon's 2nd District

Current Owner(s) Teresa & Jack Southworth (Property)

Operator(s): inactive (no longer a dry cleaner)

Site Contact(s): Teresa & Jack Southworth
516 S Canyon Blvd.
John Day, OR 97845
(541) 575-5648

Directions to site: The site is located on the east side of S Canyon Blvd. (State Highway 395) approximately 160 feet north of the intersection of SW 5th Ave. with S Canyon Blvd. in John Day, Oregon

Description of Surrounding Properties and Features: See Section 2.1

Ownership History: See Section 2.2

TABLE OF CONTENTS

<u>Section</u>	<u>Page</u>
1.0 INTRODUCTION	1
2.0 SITE DESCRIPTION, OPERATIONAL HISTORY, AND WASTE CHARACTERISTICS	2
2.1 SITE DESCRIPTION	2
2.2 OWNERSHIP AND OPERATIONAL HISTORY	2
2.3 SOURCE AREAS AND WASTE CHARACTERISTICS	2
3.0 LIMITED SOIL AND GROUNDWATER SAMPLING METHODS AND RESULTS	3
3.1 SAMPLE COLLECTION METHODS AND RATIONALE	3
3.2 LABORATORY ANALYTICAL METHODS	3
3.3 SOIL ANALYTICAL RESULTS	4
3.4 GROUNDWATER ANALYTICAL RESULTS	4
4.0 GROUNDWATER PATHWAY	5
4.1 REGIONAL GEOLOGY AND HYDROGEOLOGY	5
4.2 SITE GEOLOGY AND HYDROGEOLOGY	5
4.3 GROUNDWATER TARGETS	5
4.3.1 <i>Community Water Systems Information</i>	7
4.3.1.1 City of John Day	7
4.3.1.2 City of Canyon City	7
4.3.2 <i>Domestic Well Information</i>	8
4.3.3 <i>Groundwater Resources</i>	8
4.4 GROUNDWATER CONCLUSIONS	8
5.0 SURFACE WATER PATHWAY	9
5.1 AREA SETTING	9
5.2 SURFACE RUNOFF AND PROBABLE POINT OF ENTRY (PPE)	9
5.3 SURFACE WATER TARGETS	9
5.4 SURFACE WATER CONCLUSIONS	10
6.0 SOIL EXPOSURE PATHWAY	11
6.1 PHYSICAL CONDITIONS	11
6.2 SOIL TARGETS	11
6.3 SOIL EXPOSURE PATHWAY CONCLUSIONS	11
7.0 AIR MIGRATION PATHWAY	12
7.1 LIKELIHOOD OF A RELEASE	12
7.2 AIR TARGETS	12
7.3 AIR MIGRATION PATHWAY CONCLUSIONS	12
8.0 SUMMARY AND CONCLUSIONS	13
9.0 REFERENCES	14

TABLE OF CONTENTS (CONTINUED)

TABLES

Table 1 – Soil Analytical Data – Volatile Organic Compounds

Table 2 – Groundwater Analytical Data – Volatile Organic Compounds

FIGURES

Figure 1 – Site Location Map

Figure 2 – Site Map

Figure 3 – Site Radial Distance Map

Figure 4 – Fifteen Mile Target Distance Limit (TDL) From Probable Point of Entry (PPE) Map

APPENDICES

Appendix A – Aerial Photographs

Appendix B – Boring Logs, Geotechnical Hole Reports

Appendix C – Analytical Report

Appendix D – Select Well Logs, Well Log Summary Tables

Appendix E – Community and Municipal PWS System Information, Source Water Assessment Reports

Appendix F – Site Photographs

ACRONYMS

bgs	below ground surface
Blvd.	Boulevard
cfs	cubic feet per second
DEQ/ODEQ	Oregon Department of Environmental Quality
DWP	Drinking Water Program
EPA	Environmental Protection Agency
mg/kg	milligrams per kilograms
NOAA	National Oceanic and Atmospheric Administration
ODHS	Oregon Department of Human Services
OWRD	Oregon Water Resource Department
PA	Preliminary Assessment
PCE	Tetrachloroethene, Perchloroethylene
PID	photoionization detector
PPE	probable point of entry
PWS	public water system
RBC	risk-based concentration
S	South
TDL	target distance limit
ug/l	micrograms per liter
U.S.	United States
VOCs	volatile organic compounds

1.0 INTRODUCTION

Pursuant to a Cooperative Agreement (V-96089702-0) between the Environmental Protection Agency (EPA) and the Oregon Department of Environmental Quality (DEQ), the DEQ conducted a Preliminary Assessment at the former Rainbow Cleaners – Canyon Blvd. site located at 516 S Canyon Blvd. in John Day, Oregon.

Preliminary Assessments are intended generally to identify potential hazards at a site, identify sites that require immediate action, and to establish priorities for sites requiring in-depth investigations. The Preliminary Assessment is based on readily available information about the site and is not a full investigation or characterization of the site.

The Preliminary Assessment includes the identification of primary and secondary targets as part of each pathway conclusion. A primary target is a target which has a relatively high likelihood of exposure to a hazardous substance. A secondary target is a target which has a relatively low likelihood of exposure to a hazardous substance.

The Rainbow Cleaners – Canyon Blvd. Preliminary Assessment was conducted to identify potential public health and environmental threats related to the site. The Preliminary Assessment is based on data derived from the sources listed in the reference section of this report. The scope of the investigation includes review of available file information, interviews, a comprehensive target survey, and limited soil and groundwater sampling.

2.0 SITE DESCRIPTION, OPERATIONAL HISTORY, AND WASTE CHARACTERISTICS

The former Rainbow Cleaners – Canyon Blvd. site was a dry cleaner for approximately 20 years from approximately 1964 to 1984. A site location map is included as Figure 1.

2.1 Site Description

The layout of the dry cleaner operations is unknown. The 1.08-acre property is located in an area of mixed industrial, commercial, residential, and recreational use. The property is bordered by a steep bluff to the north and east, by commercial properties to the south, and by Canyon Blvd., commercial/residential properties, and Canyon Creek to the west. The site is relatively flat with a gravel surface. A site map is included as Figure 2.

Aerial photographs of the site were obtained from the University of Oregon Library for the following years: 1939, 1956, 1979, 1994, and 2005. The property appears to be developed in the 1939 aerial photograph but the quality of the photograph prevents further evaluation. The current building appears to be present in the 1956, 1979, 1994, and 2005 aerial photographs. The aerial photographs are included in Appendix A.

2.2 Ownership and Operational History

The first known dry cleaner at the site, Modern Coin Cleaners, was owned and operated by Don Thomasson. Mr. Thomasson, phone interview on December 28, 2010, indicated that Modern Coin Cleaners operated from approximately 1964 to 1980 and included four coin-operated dry cleaning machines which used approximately eight drums of perchloroethylene (PCE) per year. Mr. Thomasson sold the dry cleaning equipment to a Prineville operator when he closed Modern Coin Cleaners around 1980.

Rainbow Cleaners began operations in 1984, according to former operators Carl and Carolyn Stout. The Stouts, who were interviewed by phone on December 6, 2010, said they had an Italian-made machine that used PCE, but only operated at the site briefly before moving to a different location.

Mr. Thomasson sold the property to the Ruel Teague Motor Company, a local car dealer, in the 1990s. A Ruel Teague representative was interviewed by phone on December 8, 2010 and said the site was a car lot and did not include repair or refueling.

The current property owners, Jack and Teresa Southworth, purchased the property in November 2006. The property is used for non-dry cleaning commercial use, as a yarn shop. The second floor of the building is currently being used as a classroom. However, the second floor has been previously leased as an apartment.

2.3 Source Areas and Waste Characteristics

Areas of potential contamination are based on historic use of the site and historic practices documented at similar dry cleaner sites. In general, the machine area, floor drains, drain lines or cracks, and the service door area are the places where past-practice releases are most likely to occur in dry cleaners. According to the State Coalition for Remediation of Drycleaners, historic waste disposal practices that are no longer acceptable included disposing of solvent waste products down sewers, in dumpsters, and directly onto the ground. There are no registered underground storage tanks at the site. One small above ground heating oil tank was noted on the property. The contaminants of potential concern are PCE and associated breakdown products.

3.0 LIMITED SOIL AND GROUNDWATER SAMPLING METHODS AND RESULTS

In order to further evaluate potential source areas identified at the site, DEQ performed a limited sampling effort as part of the Preliminary Assessment on October 25, 2011. The sampling effort included the collection of subsurface soil and groundwater samples. Sampling was performed in accordance with the *Rainbow Cleaners – Canyon Blvd (Former) Work Plan* dated September 7, 2011 and the DEQ/EPA *PA/SI Investigations Quality Assurance Project Plan* dated November 2005.

Prior to field activities, a site-specific health and safety plan was prepared in accordance with the Occupational Safety and Health Act and the Oregon Administrative Rules. The Oregon Utility Notification Center was notified prior to field work to perform underground utility marking. A private utility locator, GeoPotential of Brightwood, Oregon, also cleared the boring locations. DEQ also obtained a right-of-way permit from the Oregon Department of Transportation.

Prior to performing ground disturbing actions, DEQ consulted with the Oregon State Historic Preservation Office, the Confederated Tribes of Umatilla Indian Reservation, the Confederated Tribes of Warm Springs Indian Reservation, Burns Paiute Tribe, and the Klamath Tribes as required by Section 106 of the National Historic Preservation Act.

3.1 Sample Collection Methods and Rationale

Three soil borings were advanced on October 25, 2011 using a limited access sonic drill rig operated by Major Drilling Environmental LLC of Tualatin, Oregon. The soil borings were located in or near potential source areas most likely to have had releases. Soil cores were obtained continuously for description, field screening, and sampling for possible chemical analysis. All borings were logged by an Oregon registered geologist using the Unified Soil Classification System. Following the collection of soil and groundwater samples, the soil borings were backfilled with bentonite. Subsurface soil generally consisted of silty sandy gravel to the total depth explored of 19 feet below ground surface (bgs). Groundwater was encountered in the soil borings at 13 feet to 14 feet bgs.

One soil sample and one groundwater sample were collected from each soil boring and submitted for analysis. Soil boring locations are shown on Figure 2. Soil sample locations are also shown on the soil boring logs. Soil boring logs and Oregon Water Resource Department (OWRD) Geotechnical Hole Reports are included in Appendix B.

All non-disposable field equipment and devices were decontaminated to prevent cross-contamination between sampling events. The drilling equipment was cleaned before and after each boring. During soil boring drilling, soil was field-screened using a photoionization detector (PID) with a 10.2 electron volt lamp. Soil to be screened was placed in a plastic bag and allowed to warm to ambient temperatures prior to obtaining a reading. PID readings were recorded on the soil boring logs. The PID was calibrated prior to field use using a manufacturer-supplied standard gas.

3.2 Laboratory Analytical Methods

All soil and groundwater samples were submitted to ESC Lab Sciences of Mt. Juliet, Tennessee and were analyzed for volatile organic compounds (VOCs) by EPA Method 8260B. Analytical results are summarized on Tables 1 and 2. Sample locations are shown on Figure 2 as well as on the boring logs in Appendix B. Complete analytical reports are included in Appendix C. Additional samples were collected for quality assurance purposes.

3.3 Soil Analytical Results

One soil sample was collected and analyzed from each soil boring from the soil/groundwater interface. Soil samples from borings B-1 and B-2 were collected at 14 feet bgs. The soil sample from boring B-3 was collected at 11.5 feet bgs. A duplicate soil sample was collected from boring B-2. All soil samples were analyzed for VOCs. Concentrations of PCE were detected in the soil samples from boring B-1 and B-2 at levels of 0.0039 milligram per kilograms (mg/kg) and 0.012 mg/kg, respectively.

3.4 Groundwater Analytical Results

One groundwater sample was collected from borings B-1, B-2, and B-3. A duplicate groundwater sample was collected from boring B-2. Concentrations of VOCs were detected in the groundwater samples collected from borings B-1 and B-2 at levels ranging from 0.43 micrograms per liter (ug/l) to 4.0 ug/l.

3.5 Risk-Based Screening

Detected soil and groundwater concentrations were compared to generic risk-based concentrations (RBCs) listed in DEQ's *Risk-Based Decision Making for the Remediation of Petroleum-Contaminated Sites* guidance (1) to assist in the identification of compounds and pathways of concern.

The detected concentration of PCE in the soil sample from boring B-2 exceeded the *residential* RBC for the leaching to groundwater pathway.

The concentration of benzene detected in groundwater sample from boring B-1 exceeded the *residential* RBC for the ingestion and inhalation from tap water pathway. Concentrations of PCE detected in groundwater samples from borings B-1 and B-2 exceeded the *residential and occupational* RBCs for the ingestion and inhalation from tap water pathway.

4.0 GROUNDWATER PATHWAY

4.1 Regional Geology and Hydrogeology

The City of John Day is located in the John Day Basin within the Blue Mountain geologic province of northeast Oregon. The Blue Mountains consist of several small mountain chains with widely varying orientations and lithologies. Docking of several distinct terrains to the ancestral coastline of North America resulted in the accretion of a wide range of meta-sediments and volcanics that form the basement of the Blue Mountains. These rocks are overlain in many areas by the Columbia River Basalt Group which consists of layered basalt flows covering much of southeast Washington and northeast Oregon (2). The Rattlesnake Formation is a thick sequence of sand and gravel that was deposited in the John Day Valley. The Quaternary Alluvium consists of unconsolidated silt, sand, and gravel (3). The primary groundwater aquifer is within the Rattlesnake Formation. Regional groundwater flow is likely towards the John Day River.

4.2 Site Geology and Hydrogeology

Subsurface soil encountered in the vicinity of the site consists of silty sandy gravels to the total depth explored of 19 feet bgs. Groundwater was encountered at 13 feet to 14 feet bgs. Shallow groundwater at the site is expected to flow to the west-northwest towards Canyon Creek.

4.3 Groundwater Targets

A search of the OWRD's GRID (well-log) database (4) was completed for a four-mile radius of the site (see Figure 3) in order to identify the location of domestic or community water wells. In addition, the Oregon Department of Human Services' (ODHS) Drinking Water Program (DWP) database (5) was searched for information on the community water system. The radial distance of domestic, community, and municipal wells from the site are presented on the table located on the following page. This table also includes the secondary target population data for people served by wells at various distances from the site. Summary tables of well logs within the four mile radius and select well logs are included in Appendix D.

A water well is not located on the site. The nearest domestic or community wells are greater than 0.5 mile but less than 1 mile from the site.

Water Well Summary

Radial Distance from Site (miles)	Number of Wells	Population Served within radius	Cumulative Population Served	Aquifer
0 - ¼	0 domestic wells	0	0	
¼ - ½	1 domestic well	2	2	unconfined alluvium aquifer
½ - 1	23 domestic wells 1 partial community system ¹	1,011	1,013	unconfined alluvium aquifer; confined layered volcanic aquifer; Rattlesnake Formation
1 - 2	147 domestic wells 1 partial community system ²	660	1,673	unconfined alluvium aquifer; Rattlesnake Formation
2 - 3	134 domestic wells	305	1,978	unconfined alluvium aquifer
3 - 4	48 domestic wells	105	2,083	unconfined alluvium aquifer

Note: Domestic well population served assumes 2.19 people per household in Grant County, Oregon (6). Population numbers are rounded to the nearest whole number.

¹ The City of John Day community system consists of one spring, one well, and one seasonal well. The two wells are located in the ¼-mile to ½-mile distance ring. Half of the water system population was counted (see Appendix E).

² The City of Canyon City community system consists of two springs and one well. The well is located in the 2-mile to 3-mile distance ring. Half of the water system population was counted (see Appendix E).

4.3.1 Community Water Systems Information

Two community water systems utilizing groundwater are located within a 4-mile radius of the site. Each system is discussed below. Systems located in Oregon are regulated by the DWP. To be a regulated system, in Oregon, the water system must have at least four service connections or serve water to public or commercial premises which are used by an average of at least 10 individuals daily at least 60 days each year.

4.3.1.1 City of John Day

The City of John Day water system consists of one spring, two permanent wells, and two emergency wells. The two permanent wells and one of the emergency wells are located over 0.5 mile and under 1 mile. These wells are located on the opposite side of the John Day River from the site. The spring consists of three mine shafts with collection pipes. The spring is located over two miles and under three miles from the site. The city water system has 821 connections and serves 1,920 people.

A source water assessment for the City of John Day water system was completed by the DWP and DEQ in December 2005. The assessment of the water system includes a detailed evaluation of the spring and permanent Well No. 3 and emergency Well No. 4. The assessment did not include a discussion about the permanent city well (Well No. 5) installed in 2003.

The wells are completed in a deep confined layered volcanic aquifer. Well No. 3 may also obtain water from the unconfined alluvium aquifer. The spring obtains water from the Rattlesnake Formation. The public work system (PWS) summary and the December 2005 *Source Water Assessment Report* are included in Appendix E. The report discusses the water wells in more depth and includes the well construction logs. The well log for Well No. 5 and the emergency Well No. 2 are also included with the report in Appendix E.

The city water system is regulated by the DWP. The PWS identification number for this system is OR4100410. Water samples from the system are collected and analyzed on the frequency required by DWP. The sample frequency and parameters are summarized in the table below.

Parameter	Frequency	Last Sampled
Arsenic	3 years	December 2010
Inorganic Compounds	9 years	January 2003
Nitrate	Yearly	September 2011
Nitrite	9 years	January 2003
Radiological Compounds	9 years	March 2004
Synthetic Organic Compounds	3 years	July 2009
VOCs	3 years	July 2009

A review of the available sampling results collected since January 1986 indicates compounds primarily detected in the water are fluoride, metals, nitrate, sodium, and sulfate.

4.3.1.2 City of Canyon City

The City of Canyon City water system consists of two springs and one well. The well is located over 1 mile and under 2 miles from the site. The springs are located just over four miles from the site. The city water system has 315 connections and serves 676 people.

A source water assessment for the City of Canyon City water system was completed by the DWP and DEQ in June 2005. The assessment of the water system includes a detailed evaluation of the springs and well. The well obtains water from the Rattlesnake Formation over 200 feet bgs. The PWS summary and the December 2005 *Source Water Assessment Report* are included in Appendix E. The report discusses the water well in more depth and includes the well construction log.

The city water system is regulated by the DWP. The PWS identification number for this system is OR4100165. Water samples from the system are collected and analyzed on the frequency required by DWP. The sample frequency and parameters are summarized in the table below.

Parameter	Frequency	Last Sampled
Arsenic	3 years	June 2011
Inorganic Compounds	9 years	June 2011
Nitrate	Yearly	June 2011
Nitrite	9 years	June 2011
Radiological Compounds	9 years	April 2005
Synthetic Organic Compounds	3 years	June 2011
VOCs	3 years	June 2011

A review of the available sampling results collected since June 1978 indicates compounds primarily detected in the water are fluoride, metals, nitrate, sodium, and sulfate.

4.3.2 Domestic Well Information

There are over 353 domestic wells located with a four mile radius of the site and a majority of the wells are completed in the unconfined alluvium aquifers. Well log summaries including total depth and depth to water are included in Appendix D along with select well logs.

4.3.3 Groundwater Resources

Groundwater is not used for irrigation of commercial forage crops within the four mile radius. The site is not located within the projected 15 year travel time drinking water protection area for the shallow aquifer.

4.4 Groundwater Conclusions

Groundwater was encountered at the site between 13 feet and 14 feet bgs. A release of hazardous substances was documented at the site. Based on the low levels of contamination detected and the distance between the site and drinking water wells, drinking water users within the four mile radius are considered secondary targets.

5.0 SURFACE WATER PATHWAY

5.1 Area Setting

The area is semi-arid, receiving approximately 14 inches of precipitation annually. The average low temperature is 34 degrees Fahrenheit and the average high temperature is 63 degrees Fahrenheit (7). The 2-year, 24 hour precipitation event is 0.16 inches (8). The site is located in an area of minimal flooding (Zone C) (9). Site soils encountered during the limited site evaluation consisted of alluvium deposits.

The City of John day is located in the John Day Watershed Subbasin. The basin has four watersheds; the Upper John Day, the Middle Fork John Day, the Lower John Day, and the North Fork John Day. The site is located within the Upper John Day watershed. The John Day River originates in the Strawberry Mountains and flows 284 miles to the rivers confluence with the Columbia River. The John Day River Subbasin drains more than 8,000 square miles (3).

The John Day River and Canyon Creek are listed as water quality-limited streams under Section 303(d) of the Clean Water Act for temperature (3). The DEQ issued the *John Day River Basin Total Maximum Daily Load (TMDL) and Water Quality Management Plan (WQMP)* in November 2010 for this subbasin area.

5.2 Surface Runoff and Probable Point of Entry

The site is relatively flat at the base of a bluff. The majority of the property is gravel. Surface water runoff either evaporates or infiltrates into the subsurface in the gravel areas. The drainage area is approximately 1.0 acre. The Probable Point of Entry (PPE) into the Canyon Creek is 420 feet west of the site and would primarily be through groundwater migration. The PPE and 15-mile in water target distance limit (TDL) are shown on Figure 4.

5.3 Surface Water Targets

The closest water body is Canyon Creek, located 420 feet west of the site. Canyon Creek discharges into the John Day River approximately 1 mile north of the site. The John Day River is a tributary of the Columbia River.

A river gauging station on Canyon Creek is located approximately 9 miles upriver from the site with stream flow data available from 1981 to 2001. Canyon Creek is a small to moderate stream with annual flow rates over 10 cubic feet per second (cfs) but less than 100 cfs. The two closest river gauging stations on the John Day River are located approximately 7 miles up-stream and 52 miles down steam from the point Canyon Creek discharges into the John Day River. The John Day River is a moderate to large stream with annual flow rates over 100 cfs but less than 1,000 cfs (10).

The river system was evaluated for a 15-mile downstream TDL from the probable PPE. The TDL is shown on Figure 4. Multiple water rights were identified within the TDL on the John Day River. The water rights are primarily for the extraction of water for irrigation use (11).

The Oregon Department of Fish & Wildlife (ODF&W) documents sport catch throughout Oregon. These numbers do not include tribal subsistence counts. Twelve white sturgeon were reported for the John Day River (approximately 240 pounds) in 2010. The report does not specify where on the John Day River the fish were caught. Coho, fall Chinook, spring Chinook, summer Steelhead, and winter Steelhead were not reported for the John Day River in 2010. However, fall Chinook, spring Chinook,

and summer Steelhead were reported from the Middle Fork and North Forks of the John Day River located outside of the 15-mile TDL (12).

There are numerous wetlands, primarily freshwater emergent, located along the John Day River within the 15-mile downstream TDL from the PPE. The nearest wetland is located over 0.5 mile but less than 1 mile of the PPE. The wetlands have a total frontage of approximately 45 miles (13).

Information on threatened and endangered species and habitat was obtained from database searches with the Oregon Biodiversity Information Center, US Fish & Wildlife, NOAA's National Marine Fisheries Service, and other resources (3, 14, 15, 16).

The westslope cutthroat trout (*Oncorhynchus clarkii lewisi*) is a federal species of concern and the summer run of steelhead (*Oncorhynchus mykiss*) and bull trout (*Salvelinus confluentus*) are federal listed as threatened. All three have or may have populations present in the John Day River and tributaries within the 15-mile TDL.

Two vascular plants, Howell's Colonial luina (*Luina serpentina*) and Arrow-leaf thelypody (*Thelypodium eucosmum*) are federal species of concern. However, the plants are located outside of the TDL and over 4 miles southeast of the site in the Strawberry Range.

5.4 Surface Water Conclusions

DEQ has not identified any primary targets within the 15-mile TDL. Secondary targets within the 15-mile TDL include wetlands and fish populations.

6.0 SOIL EXPOSURE PATHWAY

6.1 Physical Conditions

A building covering 1,050 square feet is located on the property. The remainder of the property is primarily undeveloped with a gravel surface. Site photographs are included in Appendix F. The site is an active commercial property. No sources with contamination were identified within two feet of the ground surface.

6.2 Soil Targets

Land use in the vicinity of the site is primarily commercial and residential. The closest residence is located approximately 125 feet west of the site. There are no resource uses (commercial agriculture, silviculture, livestock) on the property. No terrestrial sensitive environments were identified on the property. The nearest day care facility is located over 3,000 feet to the northwest. The nearest school is located over 2,000 feet to the south. The on-site commercial business generally has one worker present on-site during store hours.

The population located in the vicinity of the site and surrounding area is provided below. DEQ utilized the Circular Area Profile population tool at the Missouri State Data Center (17) to determine the estimated radial population. The Circular Area Profile population tool uses the population data from the 2010 Census (6).

Radial Distance from Site	Population
0 to ¼ mile	242
¼ to ½ mile	204
½ – 1 mile	1,301
Total	1,747

6.3 Soil Exposure Pathway Conclusions

Soil contamination has been documented at the site. Soil exposure would primarily occur through subsurface excavation activities and vapor intrusion into a structure.

7.0 AIR MIGRATION PATHWAY

7.1 Likelihood of a Release

Compounds, if released, would most likely have migrated into subsurface soil and groundwater. The primary air migration pathway for PCE and associated breakdown products would be vapor intrusion from contamination present in the subsurface. Based on current site conditions a release to the air pathway is possible but unlikely.

7.2 Air Targets

The site is an active commercial property. There are no resource uses (commercial agriculture, silviculture, livestock) on the property or within ½ mile.

The population located in the vicinity of the site and surrounding area is provided below. DEQ utilized the Circular Area Profile population tool at the Missouri State Data Center (17) to determine the estimated radial population. The Circular Area Profile population tool uses the population data from the 2010 Census (6).

Radial Distance from Site	Population
0 to ¼ mile	242
¼ to ½ mile	204
½ – 1 mile	1,301
1 – 2 mile	1,142
2 – 3 mile	288
3 – 4 mile	110
Total	3,287

Sensitive environments and wetlands (13) were identified for the radial distances listed below.

Radial Distance from Site	Sensitive Environments and Wetlands
Site	none
0 to ¼ mile	none
¼ to ½ mile	3 acres
½ – 1 mile	19 acres
1 – 2 mile	91 acres
2 – 3 mile	280 acres
3 – 4 mile	250 acres

7.3 Air Migration Pathway Conclusions

Based on current site conditions, a release to the air pathway is unlikely to be detected.

8.0 SUMMARY AND CONCLUSIONS

The former Rainbow Cleaners – Canyon Blvd. site was a dry cleaner for approximately 20 years from approximately 1964 to 1984 that used PCE. The site is currently a non-dry cleaning commercial business.

Concentrations of PCE and associated breakdown products were detected in groundwater samples collected on the site. A release of hazardous substances has been documented at the site.

9.0 REFERENCES

- (1) Oregon Department of Environmental Quality, September 22, 2003 updated November 2011, *Risk-Based Decision Making for the Remediation of Petroleum-Contaminated Sites* guidance, <http://www.deq.state.or.us/lq/rbdm.htm>.
- (2) Orr, Elizabeth L. & Orr, William N., 2000, *Geology of Oregon*.
- (3) Columbia-Blue Mountain Resource Conservation & Development Area, March 15, 2005, *John Day Subbasin Plan*, Northwest Power and Conservation Council, <http://www.wheelerswcd.org/sites/default/files/PlanRevised.pdf>
- (4) Oregon Water Resources Department, *Well Log Query Application*, http://apps.wrd.state.or.us/apps/gw/well_log/.
- (5) Oregon Department of Human Services (ODHS), Drinking Water Program (DWP), *Drinking Water Program Data*, <http://170.104.63.9/>.
- (6) U.S. Census 2010, American Fact Finder, <http://factfinder2.census.gov/faces/nav/jsf/pages/index.xhtml>.
- (7) Western Regional Climate Center, <http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?orjohn>
- (8) Miller, J.F., Frederick, R.H., and Tracey, R.J., 1973, *Precipitation-Frequency Atlas of the Western United States, Volume X-Oregon*, U.S. Department of Commerce, http://hdsc.nws.noaa.gov/hdsc/pfds/other/or_pfds.html.
- (9) Federal Emergency Management Agency (FEMA), Flood Insurance Rate Map, City of John Day, Grant County, February 23, 1982, <http://www.msc.fema.gov/webapp/wcs/stores/servlet/FemaWelcomeView?storeId=10001&catalogId=10001&langId=-1>.
- (10) Oregon Water Resources Department, *Near Real Time Hydrographics Database*, http://apps.wrd.state.or.us/apps/sw/hydro_near_real_time/default.aspx
- (11) Oregon Water Resources Department, *Water Rights Information Query* database and mapping, <http://apps.wrd.state.or.us/apps/wr/wrinfo/Default.aspx>, <http://apps.wrd.state.or.us/apps/gis/wr/Default.htm> .
- (12) Oregon Department of Fish and Wildlife, Sport Fishing Catch, by Year, by Waterbody, <http://www.dfw.state.or.us/resources/fishing/sportcatch.asp>
- (13) U.S. Fish & Wildlife Service, Wetlands Information, <http://www.fws.gov/wetlands/data/index.html>.
- (14) Oregon Biodiversity Information Center, September 15, 2011, Rare, threatened, and endangered plant and animal records search.
- (15) U.S. Fish & Wildlife Service, *Request a Species List*, <http://www.fws.gov/oregonfwo/Species/Lists/RequestList.asp>.
- (16) NOAA's National Marine Fisheries Service, Species Under the Endangered Species Act (ESA), <http://www.nmfs.noaa.gov/pr/species/esa/>.
- (17) Missouri Census Data Center, *Circular Area Profiles (CAPS)*, <http://mcdc2.missouri.edu/websas/caps.html>.

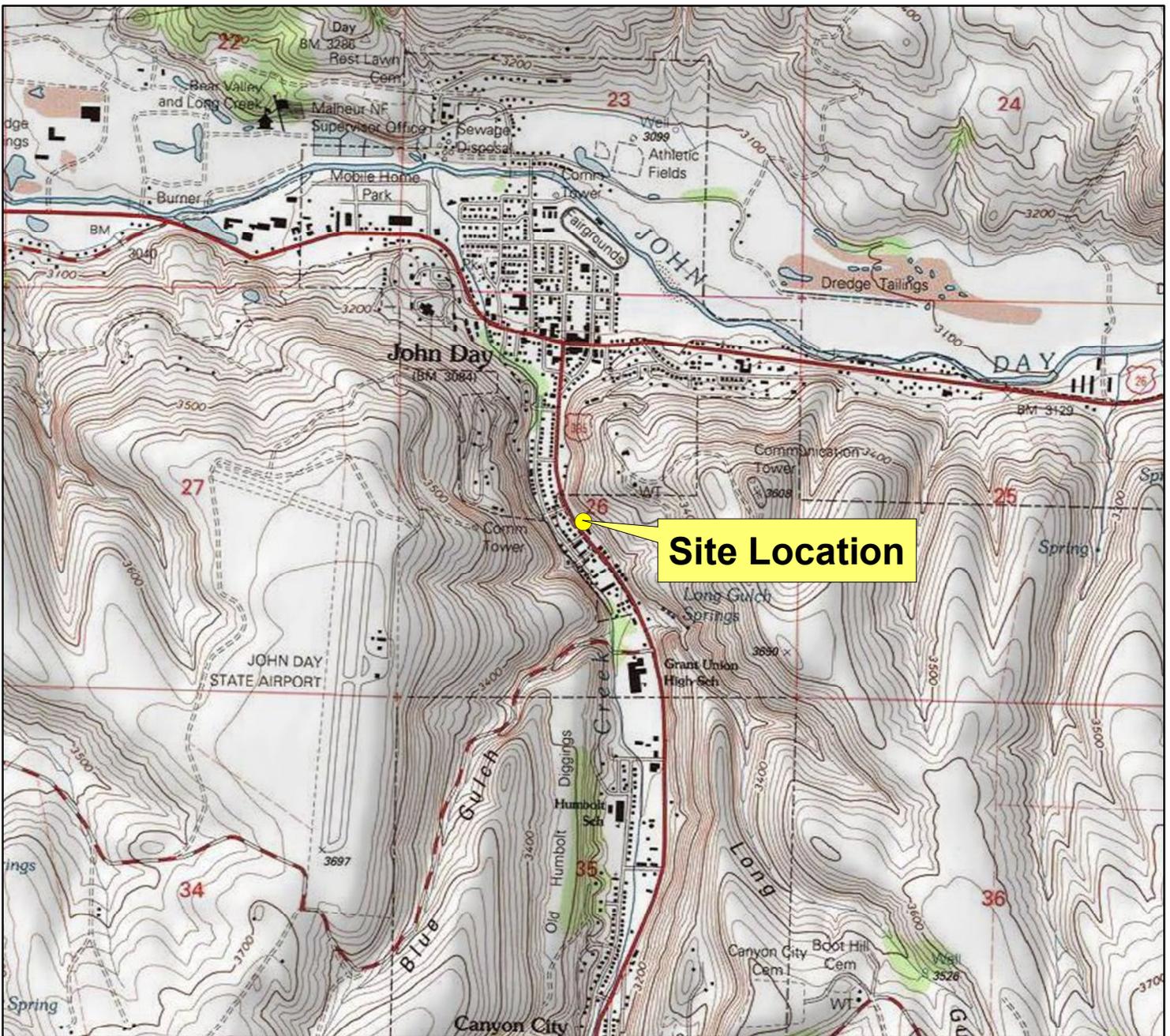
Table 1
Soil Analytical Data - Volatile Organic Compounds
 Rainbow Cleaners - Canyon Blvd (former)
 John Day, Oregon

Sample Identification	Date Sampled	Depth (feet)	Select Volatile Organic Compounds							Other VOCs ¹ (mg/kg)
			PCE (mg/kg)	TCE (mg/kg)	1,1-DCE (mg/kg)	cis-1,2-DCE (mg/kg)	trans-1,2-DCE (mg/kg)	Vinyl Chloride (mg/kg)		
B1(14)	10/25/11	14	0.0039J	<0.0057	<0.0057	<0.0057	<0.0057	<0.0057	<0.0019 ³	ND
B2(14)	10/25/11	14	0.012	<0.0059	<0.0059	<0.0059	<0.0059	<0.0059	<0.0019 ³	ND
B2(14)D ²	10/25/11	14	0.0026J	<0.0058	<0.0058	<0.0058	<0.0058	<0.0058	<0.0019 ³	ND
B3(11.5)	10/25/11	11.5	<0.0020 ³	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060	<0.0019 ³	yes
RBC _{ss} ⁴	residential	-	1.1	6.4	1,800	160	590	0.34	-	-
	occupational	-	5.1	46	27,000	2,000	9,200	3.9	-	-
	construction	-	40	120	12,000	620	4,500	30	-	-
	excav worker	-	1,100	3,400	340,000	17,000	130,000	830	-	-
RBC _{so} ⁵	residential	-	13	14	>C _{sat}	>max	2,000	5.3	-	-
	occupational	-	66	96	>C _{sat}	>max	>C _{sat}	89	-	-
RBC _{si} ⁶	residential	-	0.11	0.13	54	>max	16	0.043	-	-
	occupational	-	1.6	2.7	680	>max	200	2.2	-	-
RBC _{sw} ⁷	residential	-	0.0054	0.020	11	1.2	2.5	0.00051	-	-
	occupational	-	0.037	0.21	45	5	10	0.010	-	-
Notes:										
PCE = tetrachloroethene, perchloroethylene			1,1-DCE = 1,1-dichloroethene			trans-1,2-DCE = trans-1,2-dichloroethene				
TCE = trichloroethene			cis-1,2-DCE = cis-1,2-dichloroethene							
Bolded numbers are greater than one or more RBC.										
¹ See analytical reports for compound specific reporting limits and other detected compounds.										
² Duplicate sample										
³ The minimum detection limit (MDL) is listed instead of the reported detection limit (RDL) for this analyte.										
⁴ Risk based concentration for soil ingestion, dermal contact, and inhalation pathway										
⁵ Risk based concentration for volatilization to outdoor air pathway										
⁶ Risk based concentration for vapor intrusion into buildings pathway										
⁷ Risk based concentration for leaching to groundwater pathway										
>C _{sat} = This soil RBC exceeds the limit of three-phase equilibrium partitioning. Soil concentrations in excess of C _{sat} indicate that free product might be present.										
J = Analyte detected above the minimum detection limit (MDL) but not the reported detection limit (RDL). Estimated value.										
>max = The constituent RBC for this pathway is >100,000 mg/kg. Highly unlikely that such concentrations will ever be encountered.										
mg/kg = milligrams per kilograms										
ND = Not detected										
RBC = Risk Based Concentrations from "Risk-Based Decision Making for the Remediation of Petroleum-Contaminated Site" dated September 22, 2003 and updated November 15, 2011.										
Volatile Organic Compounds by EPA Method 8260B										

Table 2
Groundwater Analytical Data - Volatile Organic Compounds
 Rainbow Cleaners - Canyon Blvd (former)
 John Day, Oregon

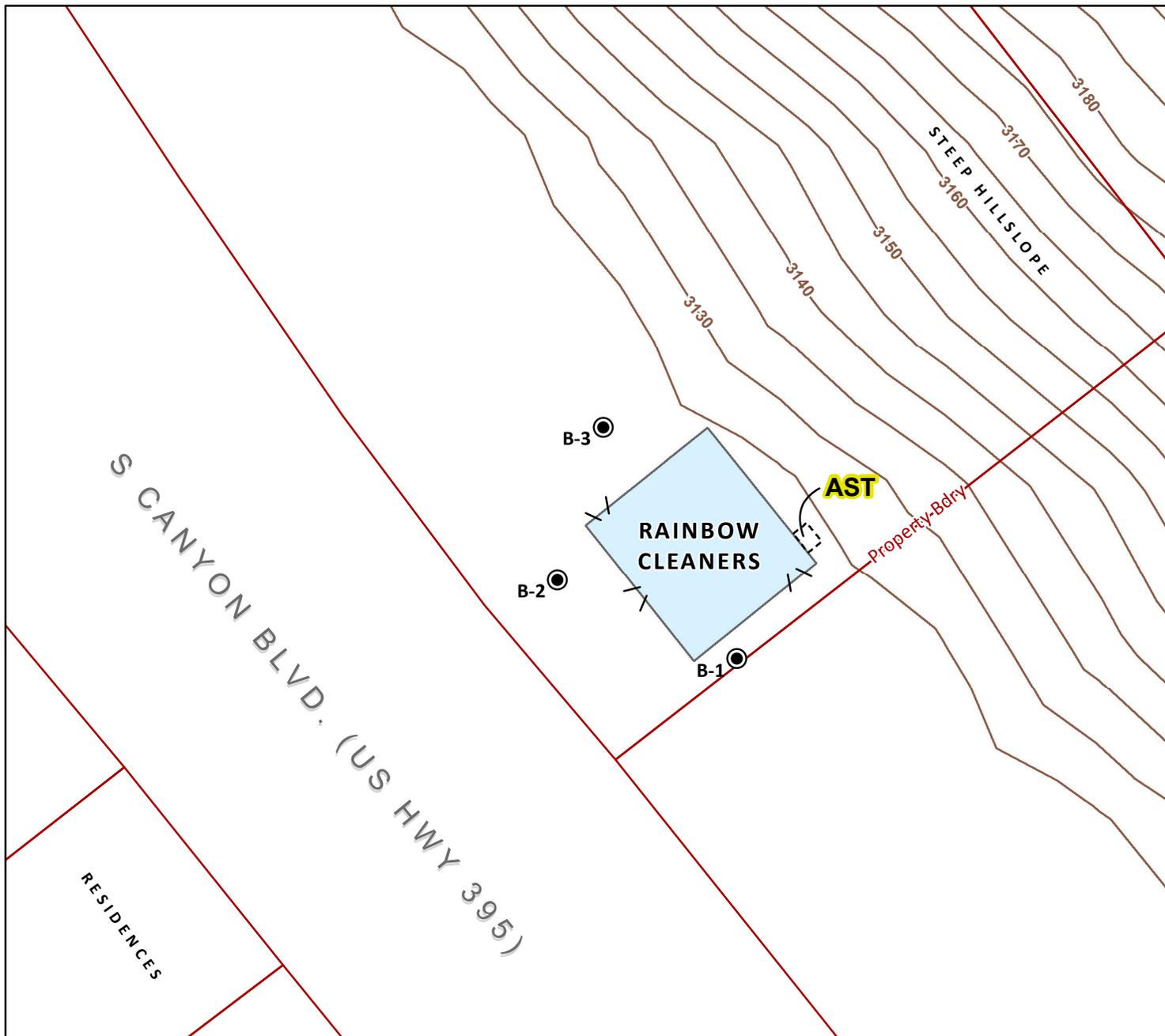
Sample Identification	Date Sampled	Select Volatile Organic Compounds								
		Benzene (ug/l)	Toluene (ug/l)	PCE (ug/l)	TCE (ug/l)	1,1-DCE (ug/l)	cis-1,2-DCE (ug/l)	trans-1,2-DCE (ug/l)	Vinyl Chloride (ug/l)	Other VOCs Detected ¹ (ug/l)
B1	10/25/11	0.43J	2.4	3.2	<0.29 ³	<1.0	<1.0	<1.0	<0.28 ³	yes
B2	10/25/11	<0.18 ³	<5.0	4.0	<0.29 ³	<1.0	<1.0	<1.0	<0.28 ³	ND
B2D ²	10/25/11	<0.18 ³	<5.0	4.0	<0.29 ³	<1.0	<1.0	<1.0	<0.28 ³	ND
B3	10/25/11	<0.18 ³	<5.0 ⁴	<0.24 ³	<0.29 ³	<1.0	<1.0	<1.0	<0.28 ³	ND
RBC _{tw} ⁵	residential	0.39	2,300	0.093	0.43	340	73	110	0.025	-
	occupational	2.2	9,200	0.64	3.6	1,400	290	450	0.52	-
RBC _{wo} ⁶	residential	2,800	>S	1,800	2,800	550,000	>S	430,000	400	-
	occupational	14,000	>S	9,200	19,000	>S	>S	1,800,000	6,800	-
RBC _{wi} ⁷	residential	190	>S	95	160	27,000	>S	28,000	18	-
	occupational	2,800	>S	1,400	3,300	340,000	>S	350,000	910	-
RBC _{we} ⁸	construction and excavation worker	1,700	210,000	240	430	43,000	24,000	14,000	1,200	-

Notes
 PCE = tetrachloroethene, perchloroethylene
 TCE = trichloroethene
 1,1-DCE = 1,1-dichloroethene
 cis-1,2-DCE = cis-1,2-dichloroethene
 trans-1,2-DCE = trans-1,2-dichloroethene
 Bolded numbers are greater than one or more RBC.
¹ See analytical reports for compound specific reporting limits and other detected compounds.
² Duplicate sample
³ The minimum detection limit (MDL) is listed instead of the reported detection limit (RDL) for this analyte.
⁴ An estimated concentration was detected above the minimum detection limit (MDL) for this parameter. However, the concentration was below the analytical method reported detection limit (RDL) which DEQ typically uses to demonstrate compliance. This parameter has been reported using the RDL as the detection threshold since the RDL represents a confirmed detection and the RDL is less than the most stringent DEQ risk based concentration. Please see analytical report for the "estimated" value detected.
⁵ Risk based concentration for ingestion and inhalation from tap water pathway
⁶ Risk based concentration for volatilization to outdoor air pathway
⁷ Risk based concentration for vapor intrusion into buildings pathway
⁸ Risk based concentration for groundwater in excavation pathway
 RBC = Risk Based Concentrations from "Risk-Based Decision Making for the Remediation of Petroleum-Contaminated Site" dated September 22, 2003 and updated September 15, 2009.
 >S = This groundwater RBC exceeds the solubility limit. Groundwater concentrations in excess of Solubility indicate that free product may be present.
 ug/l = micrograms per liter
 Volatile Organic Compounds by EPA Method 8260B



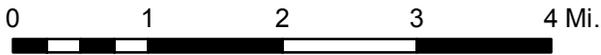
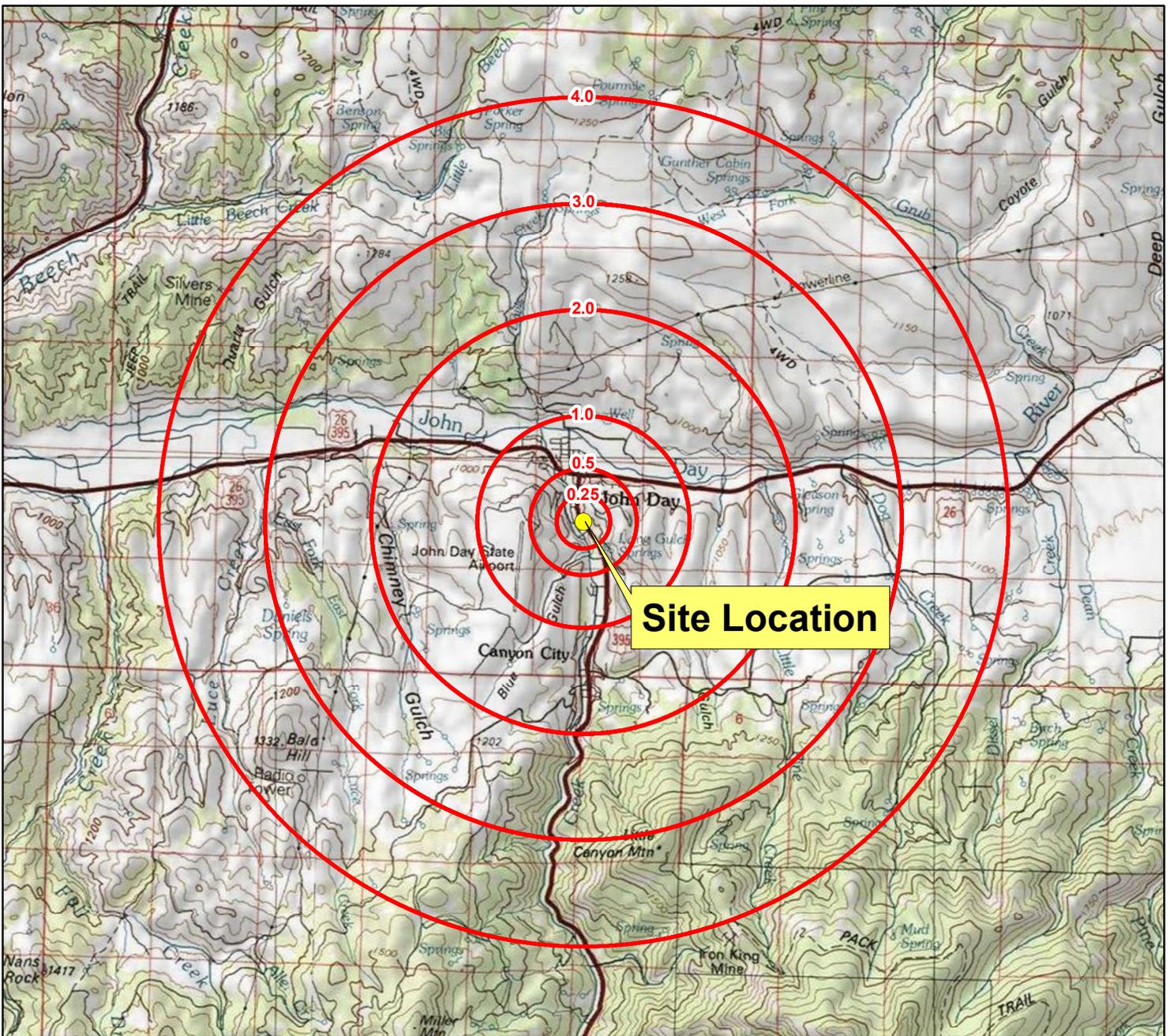
REFERENCE: NGS USA Topographic Map web mapping service (National Geographic TOPO! from USGS)

 State of Oregon Department of Environmental Quality	<p>RAINBOW CLEANERS (FORMER)</p> <p>516 S Canyon Blvd John Day, Oregon</p> <p>SITE LOCATION MAP</p>	<p>FIGURE 1</p>
---	--	---------------------



● Soil boring location

<p>State of Oregon Department of Environmental Quality</p>	<p>RAINBOW CLEANERS (FORMER)</p> <p>516 S Canyon Blvd John Day, Oregon</p> <p>SITE MAP</p>	<p>FIGURE 2</p>
--	--	---------------------



REFERENCE: NGS USA Topographic Map web mapping service (National Geographic TOPO! from USGS)

 State of Oregon Department of Environmental Quality	<p>RAINBOW CLEANERS (FORMER)</p> <p>516 S Canyon Blvd John Day, Oregon</p> <p>SITE RADIAL DISTANCE MAP</p>	<p>FIGURE 3</p>
---	---	---------------------



REFERENCES: Base imagery from I3_Imagery_Prime_World_2D Web Mapping Service
 OR wetlands from Oregon Natural Heritage Information Center, 2009

- Emergent Wetland
- Forested/Shrub Wetland
- Lakeshore/Streambank Wetland
- Unknown type



RAINBOW CLEANERS (FORMER)
 516 S Canyon Blvd
 John Day, Oregon

**PROBABLE POINT OF ENTRY (PPE)
 TO TARGET DISTANCE LIMIT (TDL)**

FIGURE
 4

APPENDIX A

AERIAL PHOTOGRAPHS



Photo Date: 1939

Source: University of Oregon Aerial
Photo Library



Rainbow Cleaners (former)
516 S Canyon Blvd
John Day, Oregon

1939 AERIAL PHOTOGRAPH

FIGURE

A-1



Photo Date: 1956

Source: University of Oregon Aerial
Photo Library



Rainbow Cleaners (former)
516 S Canyon Blvd
John Day, Oregon

1956 AERIAL PHOTOGRAPH

FIGURE

A-2



Photo Date: 1979

Source: University of Oregon Aerial
Photo Library



Rainbow Cleaners (former)

516 S Canyon Blvd

John Day, Oregon

1979 AERIAL PHOTOGRAPH

FIGURE

A-3



Photo Date: 1994

Source: University of Oregon Aerial
Photo Library



Rainbow Cleaners (former)
516 S Canyon Blvd
John Day, Oregon

1994 AERIAL PHOTOGRAPH

FIGURE

A-4

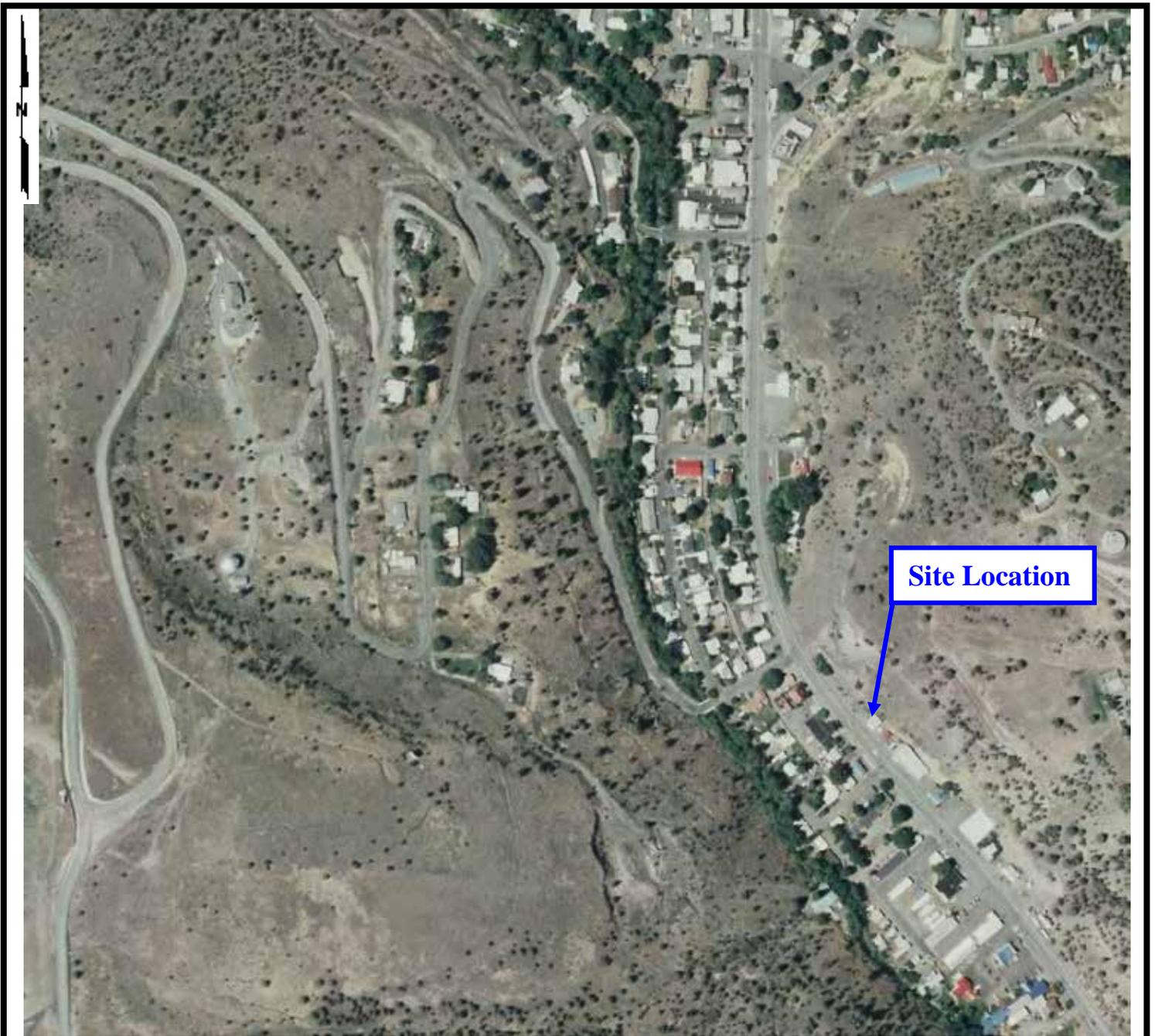


Photo Date: 2005

Source: University of Oregon Aerial
Photo Library



Rainbow Cleaners (former)
516 S Canyon Blvd
John Day, Oregon

2005 AERIAL PHOTOGRAPH

FIGURE

A-5

APPENDIX B

BORING LOGS

OWRD GEOTECHNICAL HOLE REPORTS

Rainbow Cleaners - Canyon Blvd
 ECS# 5209

B1

Drill Rig: <u>Sonic</u>	Logged By: <u>Katie Robertson, RG</u>	
Driller: <u>Major Drilling</u>	Latitude:	Longitude:
Date Start <u>10/25/11</u> Total Depth: <u>19</u>	Northing:	Easting:
Date End <u>10/25/11</u> Depth to Water: <u>14</u>	Site Address: <u>516 S. Canyon Blvd, John Day</u>	

Graphic Log	USCS	Description	Depth (bgs)	Sample	Recovery	P/D (PPM)	Completion
	Gm	Silty Sandy Gravel, some cobbles				1.4	
						2.8	
						1.8	
						3.4	
						2.7	
						-	
						4.2	
						19.6	

Backfilled
 w/ bentonite
 chips

@14' wet

* Soil Sample B1(14)@1325.
 GW Sample B1 @1350
 -gw notes - heavy sediment, low volume

Rainbow Cleaners - Canyon Blvd
 ECSE 5209

B3

Drill Rig: Sonic	Logged By: Katie Robertson, RG
Driller: Major Drilling	Latitude: Longitude:
Date Start 10/25/11 Total Depth: 19	Northing: Easting:
Date End 10/25/11 Depth to Water: 13	Site Address: 516 S. Canyon Blvd, John Day

Graphic Log	USCS	Description	Depth (bgs)	Sample	Recovery	PI D (PPM)	Completion
000	Gm	Silty Sandy Gravel w/cobbles				1.1	Backfilled w/ Bentonite chips
000	ML	@4' Sandy Silt, brown, dry	5			4.4	
000		@7' Silty Sandy Gravel w/cobbles				9.2	
000			10			7.6	
000		@15' Silt, hard, brown		*		0.2	
000			15	↓		6.3	
						0.7	
						1.2	
			20				
			25				
			30				
			35				

* Soil Sample B3(11.5)@1520
 gw sample B3 @1530

STATE OF OREGON
GEOTECHNICAL HOLE REPORT
(as required by OAR 690-240-0035)

10-27-2011

(1) OWNER/PROJECT Hole Number B-1

PROJECT NAME/NBR: 330493

First Name TERESA AND JACK Last Name SOUTHWORTH

Company _____

Address PO BOX 9

City SENECA State OR Zip 97873

(2) TYPE OF WORK New Deepening Abandonment
 Alteration (repair/recondition)

(3) CONSTRUCTION

Rotary Air Hand Auger Hollow stem auger

Rotary Mud Cable Push Probe

Other SONIC

(4) TYPE OF HOLE:

Uncased Temporary Cased Permanent

Uncased Permanent Slope Stability

Other

Other: _____

(5) USE OF HOLE

SOIL AND WATER SAMPLES

(6) BORE HOLE CONSTRUCTION Special Standard (Attach copy)

Depth of Completed Hole 19 ft.

BORE HOLE

BORE HOLE			SEAL		sacks/	
Dia	From	To	Material	From	To	Amt lbs
6	0	15	Bentonite Chips	1	19	8 S
4	15	19				

Backfill placed from 0 ft. to 1 ft. Material CONCRETE
Filter pack from _____ ft. to _____ ft. Material _____ Size _____

(7) CASING/SCREEN

Casing	Screen	Dia	+	From	To	Gauge	Stl	Plstc	Wld	Thrd
<input type="checkbox"/>	<input type="checkbox"/>						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

(8) WELL TESTS

Pump Bailor Air Flowing Artesian

Yield gal/min	Drawdown	Drill stem/Pump depth	Duration(hr)

Temperature 56 °F Lab analysis Yes By _____

Supervising Geologist/Engineer _____

Water quality concerns? Yes (describe below)

From	To	Description	Amount	Units

(9) LOCATION OF HOLE (legal description)

County Grant Twp 13.00 S N/S Range 31.00 E E/W WM

Sec 26 NW 1/4 of the SW 1/4 Tax Lot 100

Tax Map Number _____ Lot _____

Lat _____ " or _____ DMS or DD

Long _____ " or _____ DMS or DD

Street address of hole Nearest address

516 S CANYON BLV, JOHN DAY, OR 97845

(10) STATIC WATER LEVEL

Existing Well / Predeepening	Date	SWL(psi)	+	SWL(ft)
Completed Well	<u>10-26-2011</u>			<u>15</u>

Flowing Artesian?

WATER BEARING ZONES

Depth water was first found _____

SWL Date	From	To	Est Flow	SWL(psi)	+	SWL(ft)
						<u>15.00</u>

(11) SUBSURFACE LOG

Ground Elevation _____

Material	From	To
SANDY LOOSE GRAVELS	<u>0</u>	<u>19</u>

Date Started 10-25-11 Completed 10-25-11

(12) ABANDONMENT LOG:

Material	From	To	Amt	sacks/ lbs
Concrete	<u>0</u>	<u>1</u>	<u>1</u>	<u>S</u>
Bentonite Chips	<u>1</u>	<u>19</u>	<u>8</u>	<u>S</u>

Date Started 10-25-11 Completed 10-25-11

Professional Certification (to be signed by an Oregon licensed water or monitoring well constructor, Oregon registered geologist or professional engineer).

I accept responsibility for the construction, deepening, alteration, or abandonment work performed during the construction dates reported above. All work performed during this time is in compliance with Oregon geotechnical hole construction standards. This report is true to the best of my knowledge and belief.

License/Registration Number 10329 Date _____

Electronically Submitted

First Name RODNEY Last Name LABROSSE

Affiliation MAJOR DRILLING ENVIRONMENTAL, LLC

(1) OWNER/PROJECT Hole Number B-2
 PROJECT NAME/NBR: 330493
 First Name TERESA AND JACK Last Name SOUTHWORTH
 Company _____
 Address PO BOX 9
 City SENECA State OR Zip 97873
(2) TYPE OF WORK New Deepening Abandonment
 Alteration (repair/recondition)

(3) CONSTRUCTION
 Rotary Air Hand Auger Hollow stem auger
 Rotary Mud Cable Push Probe
 Other SONIC

(4) TYPE OF HOLE:
 Uncased Temporary Cased Permanent
 Uncased Permanent Slope Stability
 Other
 Other: _____

(5) USE OF HOLE
 SOIL AND WATER SAMPLES

(6) BORE HOLE CONSTRUCTION Special Standard (Attach copy)
 Depth of Completed Hole 15 ft.
 BORE HOLE SEAL

Dia	From	To	Material	From	To	Amt	sacks/ lbs
6	0	15	Bentonite Chips	1	15	8	S

Backfill placed from 0 ft. to 1 ft. Material CONCRETE
 Filter pack from _____ ft. to _____ ft. Material _____ Size _____

(7) CASING/SCREEN

Casing Screen	Dia	From	To	Gauge	Std	Plste	Wld	Thrd

(8) WELL TESTS
 Pump Bailer Air Flowing Artesian

Yield gal/min	Drawdown	Drill stem/Pump depth	Duration(hr)

Temperature 56 °F Lab analysis Yes By _____
 Supervising Geologist/Engineer _____
 Water quality concerns? Yes (describe below)

From	To	Description	Amount	Units

(9) LOCATION OF HOLE (legal description)
 County Grant Twp 13.00 S N/S Range 31.00 E E/W WM
 Sec 26 NW 1/4 of the SW 1/4 Tax Lot 100
 Tax Map Number _____ Lot _____
 Lat _____ or _____ DMS or DD
 Long _____ or _____ DMS or DD
 Street address of hole Nearest address
516 S CANYON BLV, JOHN DAY, OR 97845

(10) STATIC WATER LEVEL

Existing Well / Predeepening	Date	SWL(psi)	+ SWL(ft)
Completed Well	10-26-2011		15

WATER BEARING ZONES
 Flowing Artesian?
 Depth water was first found 15.00

SWL Date	From	To	Est Flow	SWL(psi)	+ SWL(ft)

(11) SUBSURFACE LOG Ground Elevation _____

Material	From	To
SANDY LOOSE GRAVELS	0	15

Date Started 10-25-11 Completed 10-25-11

(12) ABANDONMENT LOG:

Material	From	To	Amt	sacks/ lbs
Concrete	0	1	1	S
Bentonite Chips	1	15	8	S

Date Started 10-25-11 Completed 10-25-11

Professional Certification (to be signed by an Oregon licensed water or monitoring well constructor, Oregon registered geologist or professional engineer).
 I accept responsibility for the construction, deepening, alteration, or abandonment work performed during the construction dates reported above. All work performed during this time is in compliance with Oregon geotechnical hole construction standards. This report is true to the best of my knowledge and belief.
 License/Registration Number 10329 Date _____
 Electronically Submitted
 First Name RODNEY Last Name LABROSSE
 Affiliation MAJOR DRILLING ENVIRONMENTAL, LLC

STATE OF OREGON
GEOTECHNICAL HOLE REPORT
(as required by OAR 690-240-0035)

10-27-2011

(1) OWNER/PROJECT Hole Number B-3

PROJECT NAME/NBR: 330493

First Name TERESA AND JACK Last Name SOUTHWORTH

Company

Address PO BOX 9

City SENECA State OR Zip 97873

(2) TYPE OF WORK [X] New [] Deepening [X] Abandonment [] Alteration (repair/recondition)

(3) CONSTRUCTION

[] Rotary Air [] Hand Auger [] Hollow stem auger

[] Rotary Mud [] Cable [] Push Probe

[X] Other SONIC

(4) TYPE OF HOLE:

[X] Uncased Temporary [] Cased Permanent

[] Uncased Permanent [] Slope Stability

[] Other

Other:

(5) USE OF HOLE

SOIL AND WATER SAMPLES

(6) BORE HOLE CONSTRUCTION Special Standard [] (Attach copy)

Depth of Completed Hole 19 ft.

BORE HOLE

Table with columns: Dia, From, To, Material, From, To, Amt, sacks/lbs. Row 1: 6, 0, 15, Bentonite Chips, 1, 19, 8, S.

Backfill placed from 0 ft. to 1 ft. Material CONCRETE

Filter pack from ft. to ft. Material Size

(7) CASING/SCREEN

Table with columns: Casing, Screen, Dia, +, From, To, Gauge, Stil, Plstc, Wid, Thrd. Contains circular diagrams for casing and screen details.

(8) WELL TESTS

[] Pump [] Bailer [] Air [] Flowing Artesian

Yield gal/min Drawdown Drill stem/Pump depth Duration(hr)

Table with 4 columns: Yield gal/min, Drawdown, Drill stem/Pump depth, Duration(hr)

Temperature 56 °F Lab analysis [] Yes By

Supervising Geologist/Engineer

Water quality concerns? [] Yes (describe below)

Table with columns: From, To, Description, Amount, Units

(9) LOCATION OF HOLE (legal description)

County Grant Twp 13.00 S N/S Range 31.00 E E/W WM

Sec 26 NW 1/4 of the SW 1/4 Tax Lot 100

Tax Map Number Lot

Lat " or " DMS or DD

Long " or " DMS or DD

[X] Street address of hole [] Nearest address

516 S CANYON BLV, JOHN DAY, OR 97845

(10) STATIC WATER LEVEL

Date SWL(psi) + SWL(ft)

Table with 3 columns: Existing Well / Predeepening, Completed Well, Date. Row 1: Completed Well, 10-26-2011, 15

WATER BEARING ZONES

Flowing Artesian? []

Depth water was first found 15.00

Table with columns: SWL Date, From, To, Est Flow, SWL(psi), + SWL(ft)

(11) SUBSURFACE LOG

Ground Elevation

Table with columns: Material, From, To. Row 1: SANDY LOOSE GRAVELS, 0, 19

Date Started 10-25-11 Completed 10-25-11

(12) ABANDONMENT LOG:

Table with columns: Material, From, To, Amt, sacks/lbs. Row 1: Concrete, 0, 1, 1, S. Row 2: Bentonite Chips, 1, 19, 8, S.

Date Started 10-25-11 Completed 10-25-11

Professional Certification (to be signed by an Oregon licensed water or monitoring well constructor, Oregon registered geologist or professional engineer).

I accept responsibility for the construction, deepening, alteration, or abandonment work performed during the construction dates reported above. All work performed during this time is in compliance with Oregon geotechnical hole construction standards. This report is true to the best of my knowledge and belief.

License/Registration Number 10329 Date

Electronically Submitted

First Name RODNEY Last Name LABROSSE

Affiliation MAJOR DRILLING ENVIRONMENTAL, LLC

Map of Hole

Major Drilling Env. Project No. _____

Oregon Water Resources Department (OWRD) requires completion of a Geotechnical Hole Report if any of the following apply:

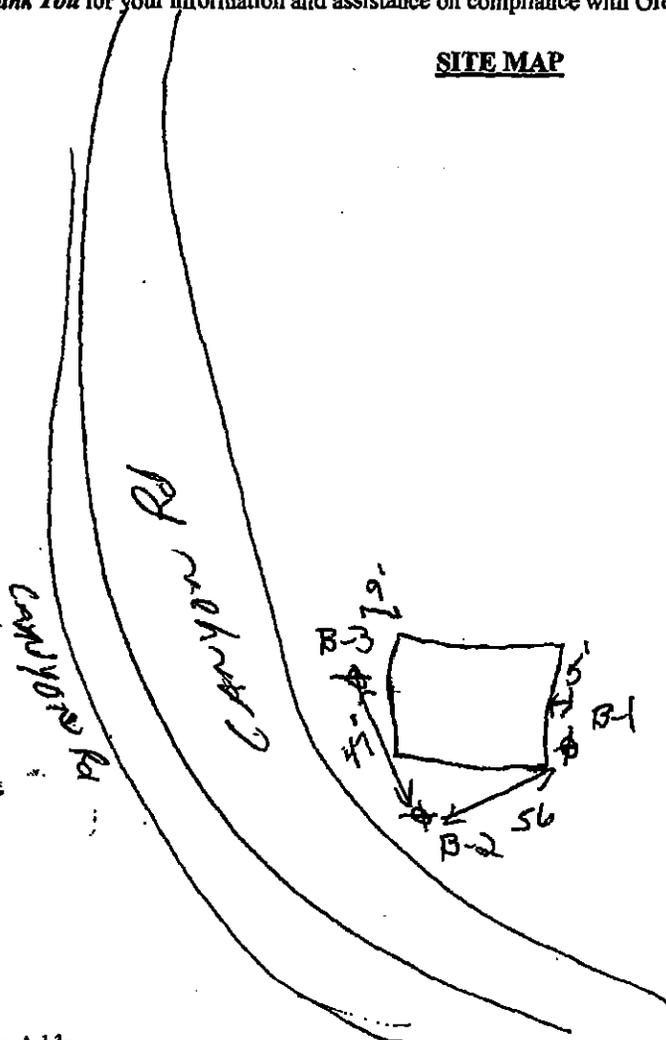
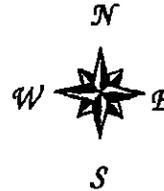
- Geotechnical hole is greater than 18 feet deep;
- Within 50 feet of a water supply or monitoring well;
- Used to make a determination of water quality;
- Constructed in an area of known or reasonably suspected contamination.

In order to comply with OWRD requirements, please provide a Site Map:

Map shall include an approximate scale of north arrow. Upon completion of well activities, a site map with each well location identified must be filed with each Geotechnical Hole Report (OR 690-240-035).

Thank You for your information and assistance on compliance with Oregon Administrative Rules.

SITE MAP



Site Address: _____
Client: _____
Major Drilling Project No.: _____

Scale: 1 Inch = _____

APPENDIX C
ANALYTICAL REPORT



12065 Lebanon Rd.
Mt. Juliet, TN 37122
(615) 758-5858
1-800-767-5859
Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

Katie Robertson
Oregon Dept. of Env. Quality - ODEQ
700 SE Emigrant, Suite 330
Pendleton, OR 97801

Report Summary

Thursday November 03, 2011

Report Number: L543787

Samples Received: 10/27/11

Client Project: 5209

Description: Rainbow Cleaners Canyon Blvd

The analytical results in this report are based upon information supplied by you, the client, and are for your exclusive use. If you have any questions regarding this data package, please do not hesitate to call.

Entire Report Reviewed By:


Jared Willis, ESC Representative

Laboratory Certification Numbers

A2LA - 1461-01, AIHA - 100789, AL - 40660, CA - I-2327, CT - PH-0197, FL - E87487
GA - 923, IN - C-TN-01, KY - 90010, KYUST - 0016, NC - ENV375/DW21704, ND - R-140
NJ - TN002, NJ NELAP - TN002, SC - 84004, TN - 2006, VA - 00109, WV - 233
AZ - 0612, MN - 047-999-395, NY - 11742, WI - 998093910, NV - TN000032008A,
TX - T104704245, OK-9915, PA - 68-02979

Accreditation is only applicable to the test methods specified on each scope of accreditation held by ESC Lab Sciences.

Note: The use of the preparatory EPA Method 3511 is not approved or endorsed by the CA ELAP.

This report may not be reproduced, except in full, without written approval from ESC Lab Sciences. Where applicable, sampling conducted by ESC is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.



12065 Lebanon Rd.
 Mt. Juliet, TN 37122
 (615) 758-5858
 1-800-767-5859
 Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

REPORT OF ANALYSIS

Katie Robertson
 Oregon Dept. of Env. Quality - ODEQ
 700 SE Emigrant, Suite 330
 Pendleton, OR 97801

November 03, 2011

Date Received : October 27, 2011
 Description : Rainbow Cleaners Canyon Blvd
 Sample ID : TRIP BLANK
 Collected By : Katie Robertson
 Collection Date : 10/25/11 00:00

ESC Sample # : L543787-01
 Site ID :
 Project # : 5209

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Volatile Organics								
Acetone	U	11.	50.	ug/l		8260B	10/28/11	1
Acrolein	U	31.	50.	ug/l	J4	8260B	10/28/11	1
Acrylonitrile	U	1.7	10.	ug/l		8260B	10/28/11	1
Benzene	U	0.18	1.0	ug/l		8260B	10/28/11	1
Bromobenzene	U	0.25	1.0	ug/l		8260B	10/28/11	1
Bromodichloromethane	U	0.21	1.0	ug/l		8260B	10/28/11	1
Bromoform	U	0.46	1.0	ug/l		8260B	10/28/11	1
Bromomethane	U	0.57	5.0	ug/l		8260B	10/28/11	1
n-Butylbenzene	U	0.20	1.0	ug/l		8260B	10/28/11	1
sec-Butylbenzene	U	0.18	1.0	ug/l		8260B	10/28/11	1
tert-Butylbenzene	U	0.21	1.0	ug/l		8260B	10/28/11	1
Carbon disulfide	U	0.22	1.0	ug/l		8260B	10/28/11	1
Carbon tetrachloride	U	0.38	1.0	ug/l		8260B	10/28/11	1
Chlorobenzene	U	0.25	1.0	ug/l		8260B	10/28/11	1
Chlorodibromomethane	U	0.29	1.0	ug/l		8260B	10/28/11	1
Chloroethane	U	1.4	5.0	ug/l		8260B	10/28/11	1
2-Chloroethyl vinyl ether	U	2.7	50.	ug/l		8260B	10/28/11	1
Chloroform	U	0.22	5.0	ug/l		8260B	10/28/11	1
Chloromethane	U	0.46	2.5	ug/l		8260B	10/28/11	1
2-Chlorotoluene	U	0.17	1.0	ug/l		8260B	10/28/11	1
4-Chlorotoluene	U	0.20	1.0	ug/l		8260B	10/28/11	1
1,2-Dibromo-3-Chloropropane	U	1.1	5.0	ug/l		8260B	10/28/11	1
1,2-Dibromoethane	U	0.44	1.0	ug/l		8260B	10/28/11	1
Dibromomethane	U	0.51	1.0	ug/l		8260B	10/28/11	1
1,2-Dichlorobenzene	U	0.26	1.0	ug/l		8260B	10/28/11	1
1,3-Dichlorobenzene	U	0.25	1.0	ug/l		8260B	10/28/11	1
1,4-Dichlorobenzene	U	0.19	1.0	ug/l		8260B	10/28/11	1
Dichlorodifluoromethane	U	0.57	5.0	ug/l		8260B	10/28/11	1
1,1-Dichloroethane	U	0.29	1.0	ug/l		8260B	10/28/11	1
1,2-Dichloroethane	U	0.26	1.0	ug/l		8260B	10/28/11	1
1,1-Dichloroethene	U	0.40	1.0	ug/l		8260B	10/28/11	1
cis-1,2-Dichloroethene	U	0.27	1.0	ug/l		8260B	10/28/11	1
trans-1,2-Dichloroethene	U	0.29	1.0	ug/l		8260B	10/28/11	1
1,2-Dichloropropane	U	0.47	1.0	ug/l		8260B	10/28/11	1
1,1-Dichloropropene	U	0.27	1.0	ug/l		8260B	10/28/11	1
1,3-Dichloropropane	U	0.37	1.0	ug/l		8260B	10/28/11	1
cis-1,3-Dichloropropene	U	0.23	1.0	ug/l		8260B	10/28/11	1
trans-1,3-Dichloropropene	U	0.39	1.0	ug/l		8260B	10/28/11	1
2,2-Dichloropropane	U	0.35	1.0	ug/l		8260B	10/28/11	1
Di-isopropyl ether	U	0.24	1.0	ug/l		8260B	10/28/11	1
Ethylbenzene	U	0.27	1.0	ug/l		8260B	10/28/11	1
Hexachloro-1,3-butadiene	U	0.38	1.0	ug/l		8260B	10/28/11	1

U = ND (Not Detected)
 RDL = Reported Detection Limit = LOQ = PQL = EQL
 MDL = Minimum Detection Limit = LOD = SQL(TRRP)

Note:

The reported analytical results relate only to the sample submitted.
 This report shall not be reproduced, except in full, without the written approval from ESC.

Reported: 11/03/11 11:35 Printed: 11/03/11 11:43



12065 Lebanon Rd.
 Mt. Juliet, TN 37122
 (615) 758-5858
 1-800-767-5859
 Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

REPORT OF ANALYSIS

Katie Robertson
 Oregon Dept. of Env. Quality - ODEQ
 700 SE Emigrant, Suite 330
 Pendleton, OR 97801

November 03, 2011

Date Received : October 27, 2011
 Description : Rainbow Cleaners Canyon Blvd
 Sample ID : TRIP BLANK
 Collected By : Katie Robertson
 Collection Date : 10/25/11 00:00

ESC Sample # : L543787-01
 Site ID :
 Project # : 5209

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Isopropylbenzene	U	0.18	1.0	ug/l		8260B	10/28/11	1
p-Isopropyltoluene	U	0.17	1.0	ug/l		8260B	10/28/11	1
2-Butanone (MEK)	U	3.0	10.	ug/l		8260B	10/28/11	1
Methylene Chloride	U	0.79	5.0	ug/l		8260B	10/28/11	1
4-Methyl-2-pentanone (MIBK)	U	0.80	10.	ug/l		8260B	10/28/11	1
Methyl tert-butyl ether	U	0.27	1.0	ug/l		8260B	10/28/11	1
Naphthalene	U	0.69	5.0	ug/l		8260B	10/28/11	1
n-Propylbenzene	U	0.18	1.0	ug/l		8260B	10/28/11	1
Styrene	U	0.30	1.0	ug/l		8260B	10/28/11	1
1,1,1,2-Tetrachloroethane	U	0.31	1.0	ug/l		8260B	10/28/11	1
1,1,2,2-Tetrachloroethane	U	0.29	1.0	ug/l		8260B	10/28/11	1
1,1,2-Trichlorotrifluoroethane	U	0.38	1.0	ug/l		8260B	10/28/11	1
Tetrachloroethene	U	0.24	1.0	ug/l	J4	8260B	10/28/11	1
Toluene	U	0.16	5.0	ug/l		8260B	10/28/11	1
1,2,3-Trichlorobenzene	U	0.30	1.0	ug/l		8260B	10/28/11	1
1,2,4-Trichlorobenzene	U	0.21	1.0	ug/l		8260B	10/28/11	1
1,1,1-Trichloroethane	U	0.24	1.0	ug/l		8260B	10/28/11	1
1,1,2-Trichloroethane	U	0.38	1.0	ug/l		8260B	10/28/11	1
Trichloroethene	U	0.29	1.0	ug/l		8260B	10/28/11	1
Trichlorofluoromethane	U	0.49	5.0	ug/l		8260B	10/28/11	1
1,2,3-Trichloropropane	U	0.52	2.5	ug/l		8260B	10/28/11	1
1,2,4-Trimethylbenzene	U	0.20	1.0	ug/l		8260B	10/28/11	1
1,2,3-Trimethylbenzene	U	0.17	1.0	ug/l		8260B	10/28/11	1
1,3,5-Trimethylbenzene	U	0.18	1.0	ug/l		8260B	10/28/11	1
Vinyl chloride	U	0.28	1.0	ug/l		8260B	10/28/11	1
Xylenes, Total	U	0.86	3.0	ug/l		8260B	10/28/11	1
Surrogate Recovery								
Toluene-d8	105.			% Rec.		8260B	10/28/11	1
Dibromofluoromethane	101.			% Rec.		8260B	10/28/11	1
4-Bromofluorobenzene	103.			% Rec.		8260B	10/28/11	1

U = ND (Not Detected)
 RDL = Reported Detection Limit = LOQ = PQL = EQL
 MDL = Minimum Detection Limit = LOD = SQL(TRRP)

Note:
 The reported analytical results relate only to the sample submitted.
 This report shall not be reproduced, except in full, without the written approval from ESC.

Reported: 11/03/11 11:35 Printed: 11/03/11 11:43



12065 Lebanon Rd.
 Mt. Juliet, TN 37122
 (615) 758-5858
 1-800-767-5859
 Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

REPORT OF ANALYSIS

Katie Robertson
 Oregon Dept. of Env. Quality - ODEQ
 700 SE Emigrant, Suite 330
 Pendleton, OR 97801

November 03, 2011

Date Received : October 27, 2011
 Description : Rainbow Cleaners Canyon Blvd
 Sample ID : B1 14
 Collected By : Katie Robertson
 Collection Date : 10/25/11 13:25

ESC Sample # : L543787-02
 Site ID :
 Project # : 5209

Parameter	Dry Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Total Solids	88.			%		2540G	11/03/11	1
Volatile Organics								
Acetone	U	0.12	0.28	mg/kg		8260B	10/27/11	5
Acrylonitrile	U	0.016	0.057	mg/kg		8260B	10/27/11	5
Benzene	U	0.0017	0.0057	mg/kg		8260B	10/27/11	5
Bromobenzene	U	0.0017	0.0057	mg/kg		8260B	10/27/11	5
Bromodichloromethane	U	0.0016	0.0057	mg/kg		8260B	10/27/11	5
Bromoform	U	0.0018	0.0057	mg/kg		8260B	10/27/11	5
Bromomethane	U	0.0088	0.028	mg/kg		8260B	10/27/11	5
n-Butylbenzene	U	0.0017	0.0057	mg/kg		8260B	10/27/11	5
sec-Butylbenzene	U	0.0016	0.0057	mg/kg		8260B	10/27/11	5
tert-Butylbenzene	U	0.0016	0.0057	mg/kg		8260B	10/27/11	5
Carbon disulfide	U	0.0019	0.0057	mg/kg	J3	8260B	10/27/11	5
Carbon tetrachloride	U	0.0019	0.0057	mg/kg		8260B	10/27/11	5
Chlorobenzene	U	0.0016	0.0057	mg/kg		8260B	10/27/11	5
Chlorodibromomethane	U	0.0018	0.0057	mg/kg		8260B	10/27/11	5
Chloroethane	U	0.0058	0.028	mg/kg		8260B	10/27/11	5
2-Chloroethyl vinyl ether	U	0.0088	0.28	mg/kg	J3	8260B	10/27/11	5
Chloroform	U	0.0021	0.028	mg/kg		8260B	10/27/11	5
Chloromethane	U	0.0035	0.014	mg/kg		8260B	10/27/11	5
2-Chlorotoluene	U	0.0016	0.0057	mg/kg		8260B	10/27/11	5
4-Chlorotoluene	U	0.0014	0.0057	mg/kg		8260B	10/27/11	5
1,2-Dibromo-3-Chloropropane	U	0.010	0.028	mg/kg		8260B	10/27/11	5
1,2-Dibromoethane	U	0.0019	0.0057	mg/kg		8260B	10/27/11	5
Dibromomethane	U	0.0018	0.0057	mg/kg		8260B	10/27/11	5
1,2-Dichlorobenzene	U	0.0017	0.0057	mg/kg		8260B	10/27/11	5
1,3-Dichlorobenzene	U	0.0017	0.0057	mg/kg		8260B	10/27/11	5
1,4-Dichlorobenzene	U	0.0016	0.0057	mg/kg		8260B	10/27/11	5
Dichlorodifluoromethane	U	0.0038	0.028	mg/kg		8260B	10/27/11	5
1,1-Dichloroethane	U	0.0020	0.0057	mg/kg		8260B	10/27/11	5
1,2-Dichloroethane	U	0.0020	0.0057	mg/kg		8260B	10/27/11	5
1,1-Dichloroethene	U	0.0031	0.0057	mg/kg		8260B	10/27/11	5
cis-1,2-Dichloroethene	U	0.0018	0.0057	mg/kg		8260B	10/27/11	5
trans-1,2-Dichloroethene	U	0.0020	0.0057	mg/kg		8260B	10/27/11	5
1,2-Dichloropropane	U	0.0032	0.0057	mg/kg		8260B	10/27/11	5
1,1-Dichloropropene	U	0.0019	0.0057	mg/kg		8260B	10/27/11	5
1,3-Dichloropropane	U	0.0017	0.0057	mg/kg		8260B	10/27/11	5
cis-1,3-Dichloropropene	U	0.0019	0.0057	mg/kg		8260B	10/27/11	5
trans-1,3-Dichloropropene	U	0.0017	0.0057	mg/kg		8260B	10/27/11	5
2,2-Dichloropropane	U	0.0020	0.0057	mg/kg		8260B	10/27/11	5
Di-isopropyl ether	U	0.0018	0.0057	mg/kg		8260B	10/27/11	5
Ethylbenzene	U	0.0019	0.0057	mg/kg		8260B	10/27/11	5

Results listed are dry weight basis.

U = ND (Not Detected)

MDL = Minimum Detection Limit = LOD

RDL = Reported Detection Limit = LOQ = PQL = EQL

Note:

This report shall not be reproduced, except in full, without the written approval from ESC.

The reported analytical results relate only to the sample submitted

Reported: 11/03/11 11:35 Printed: 11/03/11 11:43



12065 Lebanon Rd.
 Mt. Juliet, TN 37122
 (615) 758-5858
 1-800-767-5859
 Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

REPORT OF ANALYSIS

Katie Robertson
 Oregon Dept. of Env. Quality - ODEQ
 700 SE Emigrant, Suite 330
 Pendleton, OR 97801

November 03, 2011

Date Received : October 27, 2011
 Description : Rainbow Cleaners Canyon Blvd
 Sample ID : B1 14
 Collected By : Katie Robertson
 Collection Date : 10/25/11 13:25

ESC Sample # : L543787-02
 Site ID :
 Project # : 5209

Parameter	Dry Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Hexachloro-1,3-butadiene	U	0.0019	0.0057	mg/kg		8260B	10/27/11	5
Isopropylbenzene	U	0.0016	0.0057	mg/kg		8260B	10/27/11	5
p-Isopropyltoluene	U	0.0016	0.0057	mg/kg		8260B	10/27/11	5
2-Butanone (MEK)	U	0.014	0.057	mg/kg		8260B	10/27/11	5
Methylene Chloride	U	0.0065	0.028	mg/kg		8260B	10/27/11	5
4-Methyl-2-pentanone (MIBK)	U	0.014	0.057	mg/kg	J3	8260B	10/27/11	5
Methyl tert-butyl ether	U	0.0016	0.0057	mg/kg	J3	8260B	10/27/11	5
Naphthalene	U	0.0028	0.028	mg/kg		8260B	10/27/11	5
n-Propylbenzene	U	0.0017	0.0057	mg/kg		8260B	10/27/11	5
Styrene	U	0.0019	0.0057	mg/kg		8260B	10/27/11	5
1,1,1,2-Tetrachloroethane	U	0.0020	0.0057	mg/kg		8260B	10/27/11	5
1,1,2,2-Tetrachloroethane	U	0.0021	0.0057	mg/kg		8260B	10/27/11	5
1,1,2-Trichlorotrifluoroethane	U	0.0019	0.0057	mg/kg		8260B	10/27/11	5
Tetrachloroethene	0.0039	0.0020	0.0057	mg/kg	J	8260B	10/27/11	5
Toluene	U	0.0016	0.028	mg/kg		8260B	10/27/11	5
1,2,3-Trichlorobenzene	U	0.0022	0.0057	mg/kg		8260B	10/27/11	5
1,2,4-Trichlorobenzene	U	0.0015	0.0057	mg/kg		8260B	10/27/11	5
1,1,1-Trichloroethane	U	0.0018	0.0057	mg/kg		8260B	10/27/11	5
1,1,2-Trichloroethane	U	0.0018	0.0057	mg/kg		8260B	10/27/11	5
Trichloroethene	U	0.0017	0.0057	mg/kg		8260B	10/27/11	5
Trichlorofluoromethane	U	0.0045	0.028	mg/kg		8260B	10/27/11	5
1,2,3-Trichloropropane	U	0.0056	0.014	mg/kg	J3	8260B	10/27/11	5
1,2,4-Trimethylbenzene	U	0.0019	0.0057	mg/kg		8260B	10/27/11	5
1,2,3-Trimethylbenzene	U	0.0014	0.0057	mg/kg		8260B	10/27/11	5
1,3,5-Trimethylbenzene	U	0.0017	0.0057	mg/kg		8260B	10/27/11	5
Vinyl chloride	U	0.0019	0.0057	mg/kg		8260B	10/27/11	5
Xylenes, Total	U	0.0023	0.017	mg/kg		8260B	10/27/11	5
Surrogate Recovery								
Toluene-d8	104.			% Rec.		8260B	10/27/11	5
Dibromofluoromethane	101.			% Rec.		8260B	10/27/11	5
a,a,a-Trifluorotoluene	107.			% Rec.		8260B	10/27/11	5
4-Bromofluorobenzene	102.			% Rec.		8260B	10/27/11	5

Results listed are dry weight basis.

U = ND (Not Detected)

MDL = Minimum Detection Limit = LOD

RDL = Reported Detection Limit = LOQ = PQL = EQL

Note:

This report shall not be reproduced, except in full, without the written approval from ESC.

The reported analytical results relate only to the sample submitted

Reported: 11/03/11 11:35 Printed: 11/03/11 11:43



12065 Lebanon Rd.
 Mt. Juliet, TN 37122
 (615) 758-5858
 1-800-767-5859
 Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

REPORT OF ANALYSIS

Katie Robertson
 Oregon Dept. of Env. Quality - ODEQ
 700 SE Emigrant, Suite 330
 Pendleton, OR 97801

November 03, 2011

Date Received : October 27, 2011
 Description : Rainbow Cleaners Canyon Blvd
 Sample ID : B2 14
 Collected By : Katie Robertson
 Collection Date : 10/25/11 14:25

ESC Sample # : L543787-03
 Site ID :
 Project # : 5209

Parameter	Dry Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Total Solids	84.			%		2540G	11/03/11	1
Volatile Organics								
Acetone	U	0.12	0.30	mg/kg		8260B	10/27/11	5
Acrylonitrile	U	0.016	0.059	mg/kg		8260B	10/27/11	5
Benzene	U	0.0017	0.0059	mg/kg		8260B	10/27/11	5
Bromobenzene	U	0.0017	0.0059	mg/kg		8260B	10/27/11	5
Bromodichloromethane	U	0.0016	0.0059	mg/kg		8260B	10/27/11	5
Bromoform	U	0.0018	0.0059	mg/kg		8260B	10/27/11	5
Bromomethane	U	0.0088	0.030	mg/kg		8260B	10/27/11	5
n-Butylbenzene	U	0.0017	0.0059	mg/kg		8260B	10/27/11	5
sec-Butylbenzene	U	0.0016	0.0059	mg/kg		8260B	10/27/11	5
tert-Butylbenzene	U	0.0016	0.0059	mg/kg		8260B	10/27/11	5
Carbon disulfide	U	0.0019	0.0059	mg/kg	J3	8260B	10/27/11	5
Carbon tetrachloride	U	0.0019	0.0059	mg/kg		8260B	10/27/11	5
Chlorobenzene	U	0.0016	0.0059	mg/kg		8260B	10/27/11	5
Chlorodibromomethane	U	0.0018	0.0059	mg/kg		8260B	10/27/11	5
Chloroethane	U	0.0058	0.030	mg/kg		8260B	10/27/11	5
2-Chloroethyl vinyl ether	U	0.0088	0.30	mg/kg	J3	8260B	10/27/11	5
Chloroform	U	0.0021	0.030	mg/kg		8260B	10/27/11	5
Chloromethane	U	0.0035	0.015	mg/kg		8260B	10/27/11	5
2-Chlorotoluene	U	0.0016	0.0059	mg/kg		8260B	10/27/11	5
4-Chlorotoluene	U	0.0014	0.0059	mg/kg		8260B	10/27/11	5
1,2-Dibromo-3-Chloropropane	U	0.010	0.030	mg/kg		8260B	10/27/11	5
1,2-Dibromoethane	U	0.0019	0.0059	mg/kg		8260B	10/27/11	5
Dibromomethane	U	0.0018	0.0059	mg/kg		8260B	10/27/11	5
1,2-Dichlorobenzene	U	0.0017	0.0059	mg/kg		8260B	10/27/11	5
1,3-Dichlorobenzene	U	0.0017	0.0059	mg/kg		8260B	10/27/11	5
1,4-Dichlorobenzene	U	0.0016	0.0059	mg/kg		8260B	10/27/11	5
Dichlorodifluoromethane	U	0.0038	0.030	mg/kg		8260B	10/27/11	5
1,1-Dichloroethane	U	0.0020	0.0059	mg/kg		8260B	10/27/11	5
1,2-Dichloroethane	U	0.0020	0.0059	mg/kg		8260B	10/27/11	5
1,1-Dichloroethene	U	0.0031	0.0059	mg/kg		8260B	10/27/11	5
cis-1,2-Dichloroethene	U	0.0018	0.0059	mg/kg		8260B	10/27/11	5
trans-1,2-Dichloroethene	U	0.0020	0.0059	mg/kg		8260B	10/27/11	5
1,2-Dichloropropane	U	0.0032	0.0059	mg/kg		8260B	10/27/11	5
1,1-Dichloropropene	U	0.0019	0.0059	mg/kg		8260B	10/27/11	5
1,3-Dichloropropane	U	0.0017	0.0059	mg/kg		8260B	10/27/11	5
cis-1,3-Dichloropropene	U	0.0019	0.0059	mg/kg		8260B	10/27/11	5
trans-1,3-Dichloropropene	U	0.0017	0.0059	mg/kg		8260B	10/27/11	5
2,2-Dichloropropane	U	0.0020	0.0059	mg/kg		8260B	10/27/11	5
Di-isopropyl ether	U	0.0018	0.0059	mg/kg		8260B	10/27/11	5
Ethylbenzene	U	0.0019	0.0059	mg/kg		8260B	10/27/11	5

Results listed are dry weight basis.

U = ND (Not Detected)

MDL = Minimum Detection Limit = LOD

RDL = Reported Detection Limit = LOQ = PQL = EQL

Note:

This report shall not be reproduced, except in full, without the written approval from ESC.

The reported analytical results relate only to the sample submitted

Reported: 11/03/11 11:35 Printed: 11/03/11 11:43



12065 Lebanon Rd.
 Mt. Juliet, TN 37122
 (615) 758-5858
 1-800-767-5859
 Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

REPORT OF ANALYSIS

Katie Robertson
 Oregon Dept. of Env. Quality - ODEQ
 700 SE Emigrant, Suite 330
 Pendleton, OR 97801

November 03, 2011

Date Received : October 27, 2011
 Description : Rainbow Cleaners Canyon Blvd
 Sample ID : B2 14
 Collected By : Katie Robertson
 Collection Date : 10/25/11 14:25

ESC Sample # : L543787-03
 Site ID :
 Project # : 5209

Parameter	Dry Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Hexachloro-1,3-butadiene	U	0.0019	0.0059	mg/kg		8260B	10/27/11	5
Isopropylbenzene	U	0.0016	0.0059	mg/kg		8260B	10/27/11	5
p-Isopropyltoluene	U	0.0016	0.0059	mg/kg		8260B	10/27/11	5
2-Butanone (MEK)	U	0.014	0.059	mg/kg		8260B	10/27/11	5
Methylene Chloride	U	0.0065	0.030	mg/kg		8260B	10/27/11	5
4-Methyl-2-pentanone (MIBK)	U	0.014	0.059	mg/kg	J3	8260B	10/27/11	5
Methyl tert-butyl ether	U	0.0016	0.0059	mg/kg	J3	8260B	10/27/11	5
Naphthalene	U	0.0028	0.030	mg/kg		8260B	10/27/11	5
n-Propylbenzene	U	0.0017	0.0059	mg/kg		8260B	10/27/11	5
Styrene	U	0.0019	0.0059	mg/kg		8260B	10/27/11	5
1,1,1,2-Tetrachloroethane	U	0.0020	0.0059	mg/kg		8260B	10/27/11	5
1,1,2,2-Tetrachloroethane	U	0.0021	0.0059	mg/kg		8260B	10/27/11	5
1,1,2-Trichlorotrifluoroethane	U	0.0019	0.0059	mg/kg		8260B	10/27/11	5
Tetrachloroethene	0.012	0.0020	0.0059	mg/kg		8260B	10/27/11	5
Toluene	U	0.0016	0.030	mg/kg		8260B	10/27/11	5
1,2,3-Trichlorobenzene	U	0.0022	0.0059	mg/kg		8260B	10/27/11	5
1,2,4-Trichlorobenzene	U	0.0015	0.0059	mg/kg		8260B	10/27/11	5
1,1,1-Trichloroethane	U	0.0018	0.0059	mg/kg		8260B	10/27/11	5
1,1,2-Trichloroethane	U	0.0018	0.0059	mg/kg		8260B	10/27/11	5
Trichloroethene	U	0.0017	0.0059	mg/kg		8260B	10/27/11	5
Trichlorofluoromethane	U	0.0045	0.030	mg/kg		8260B	10/27/11	5
1,2,3-Trichloropropane	U	0.0056	0.015	mg/kg	J3	8260B	10/27/11	5
1,2,4-Trimethylbenzene	U	0.0019	0.0059	mg/kg		8260B	10/27/11	5
1,2,3-Trimethylbenzene	U	0.0014	0.0059	mg/kg		8260B	10/27/11	5
1,3,5-Trimethylbenzene	U	0.0017	0.0059	mg/kg		8260B	10/27/11	5
Vinyl chloride	U	0.0019	0.0059	mg/kg		8260B	10/27/11	5
Xylenes, Total	U	0.0023	0.018	mg/kg		8260B	10/27/11	5
Surrogate Recovery								
Toluene-d8	103.			% Rec.		8260B	10/27/11	5
Dibromofluoromethane	102.			% Rec.		8260B	10/27/11	5
a,a,a-Trifluorotoluene	103.			% Rec.		8260B	10/27/11	5
4-Bromofluorobenzene	105.			% Rec.		8260B	10/27/11	5

Results listed are dry weight basis.

U = ND (Not Detected)

MDL = Minimum Detection Limit = LOD

RDL = Reported Detection Limit = LOQ = PQL = EQL

Note:

This report shall not be reproduced, except in full, without the written approval from ESC.

The reported analytical results relate only to the sample submitted

Reported: 11/03/11 11:35 Printed: 11/03/11 11:43



12065 Lebanon Rd.
 Mt. Juliet, TN 37122
 (615) 758-5858
 1-800-767-5859
 Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

REPORT OF ANALYSIS

Katie Robertson
 Oregon Dept. of Env. Quality - ODEQ
 700 SE Emigrant, Suite 330
 Pendleton, OR 97801

November 03, 2011

Date Received : October 27, 2011
 Description : Rainbow Cleaners Canyon Blvd
 Sample ID : B2 14D
 Collected By : Katie Robertson
 Collection Date : 10/25/11 14:25

ESC Sample # : L543787-04
 Site ID :
 Project # : 5209

Parameter	Dry Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Total Solids	85.			%		2540G	11/02/11	1
Volatile Organics								
Acetone	U	0.12	0.29	mg/kg	J3	8260B	10/27/11	5
Acrylonitrile	U	0.016	0.058	mg/kg	J3	8260B	10/27/11	5
Benzene	U	0.0017	0.0058	mg/kg	J3	8260B	10/27/11	5
Bromobenzene	U	0.0017	0.0058	mg/kg	J3	8260B	10/27/11	5
Bromodichloromethane	U	0.0016	0.0058	mg/kg	J3	8260B	10/27/11	5
Bromoform	U	0.0018	0.0058	mg/kg	J3	8260B	10/27/11	5
Bromomethane	U	0.0088	0.029	mg/kg		8260B	10/27/11	5
n-Butylbenzene	U	0.0017	0.0058	mg/kg	J3	8260B	10/27/11	5
sec-Butylbenzene	U	0.0016	0.0058	mg/kg	J3	8260B	10/27/11	5
tert-Butylbenzene	U	0.0016	0.0058	mg/kg	J3	8260B	10/27/11	5
Carbon disulfide	U	0.0019	0.0058	mg/kg		8260B	10/27/11	5
Carbon tetrachloride	U	0.0019	0.0058	mg/kg	J3	8260B	10/27/11	5
Chlorobenzene	U	0.0016	0.0058	mg/kg	J3	8260B	10/27/11	5
Chlorodibromomethane	U	0.0018	0.0058	mg/kg	J3	8260B	10/27/11	5
Chloroethane	U	0.0058	0.029	mg/kg		8260B	10/27/11	5
2-Chloroethyl vinyl ether	U	0.0088	0.29	mg/kg		8260B	10/27/11	5
Chloroform	U	0.0021	0.029	mg/kg	J3	8260B	10/27/11	5
Chloromethane	U	0.0035	0.015	mg/kg		8260B	10/27/11	5
2-Chlorotoluene	U	0.0016	0.0058	mg/kg	J3	8260B	10/27/11	5
4-Chlorotoluene	U	0.0014	0.0058	mg/kg	J3	8260B	10/27/11	5
1,2-Dibromo-3-Chloropropane	U	0.010	0.029	mg/kg	J3	8260B	10/27/11	5
1,2-Dibromoethane	U	0.0019	0.0058	mg/kg	J3	8260B	10/27/11	5
Dibromomethane	U	0.0018	0.0058	mg/kg	J3	8260B	10/27/11	5
1,2-Dichlorobenzene	U	0.0017	0.0058	mg/kg	J3	8260B	10/27/11	5
1,3-Dichlorobenzene	U	0.0017	0.0058	mg/kg	J3	8260B	10/27/11	5
1,4-Dichlorobenzene	U	0.0016	0.0058	mg/kg	J3	8260B	10/27/11	5
Dichlorodifluoromethane	U	0.0038	0.029	mg/kg	J3	8260B	10/27/11	5
1,1-Dichloroethane	U	0.0020	0.0058	mg/kg	J3	8260B	10/27/11	5
1,2-Dichloroethane	U	0.0020	0.0058	mg/kg	J3	8260B	10/27/11	5
1,1-Dichloroethene	U	0.0031	0.0058	mg/kg		8260B	10/27/11	5
cis-1,2-Dichloroethene	U	0.0018	0.0058	mg/kg	J3	8260B	10/27/11	5
trans-1,2-Dichloroethene	U	0.0020	0.0058	mg/kg	J3	8260B	10/27/11	5
1,2-Dichloropropane	U	0.0032	0.0058	mg/kg	J3	8260B	10/27/11	5
1,1-Dichloropropene	U	0.0019	0.0058	mg/kg	J3	8260B	10/27/11	5
1,3-Dichloropropane	U	0.0017	0.0058	mg/kg	J3	8260B	10/27/11	5
cis-1,3-Dichloropropene	U	0.0019	0.0058	mg/kg	J3	8260B	10/27/11	5
trans-1,3-Dichloropropene	U	0.0017	0.0058	mg/kg	J3	8260B	10/27/11	5
2,2-Dichloropropane	U	0.0020	0.0058	mg/kg		8260B	10/27/11	5
Di-isopropyl ether	U	0.0018	0.0058	mg/kg	J3	8260B	10/27/11	5
Ethylbenzene	U	0.0019	0.0058	mg/kg		8260B	10/27/11	5

Results listed are dry weight basis.

U = ND (Not Detected)

MDL = Minimum Detection Limit = LOD

RDL = Reported Detection Limit = LOQ = PQL = EQL

Note:

This report shall not be reproduced, except in full, without the written approval from ESC.

The reported analytical results relate only to the sample submitted

Reported: 11/03/11 11:35 Printed: 11/03/11 11:43



12065 Lebanon Rd.
 Mt. Juliet, TN 37122
 (615) 758-5858
 1-800-767-5859
 Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

REPORT OF ANALYSIS

Katie Robertson
 Oregon Dept. of Env. Quality - ODEQ
 700 SE Emigrant, Suite 330
 Pendleton, OR 97801

November 03, 2011

Date Received : October 27, 2011
 Description : Rainbow Cleaners Canyon Blvd
 Sample ID : B2 14D
 Collected By : Katie Robertson
 Collection Date : 10/25/11 14:25

ESC Sample # : L543787-04
 Site ID :
 Project # : 5209

Parameter	Dry Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Hexachloro-1,3-butadiene	U	0.0019	0.0058	mg/kg	J3	8260B	10/27/11	5
Isopropylbenzene	U	0.0016	0.0058	mg/kg	J3	8260B	10/27/11	5
p-Isopropyltoluene	U	0.0016	0.0058	mg/kg	J3	8260B	10/27/11	5
2-Butanone (MEK)	U	0.014	0.058	mg/kg	J3	8260B	10/27/11	5
Methylene Chloride	U	0.0065	0.029	mg/kg		8260B	10/27/11	5
4-Methyl-2-pentanone (MIBK)	U	0.014	0.058	mg/kg		8260B	10/27/11	5
Methyl tert-butyl ether	U	0.0016	0.0058	mg/kg		8260B	10/27/11	5
Naphthalene	U	0.0028	0.029	mg/kg	J3	8260B	10/27/11	5
n-Propylbenzene	U	0.0017	0.0058	mg/kg	J3	8260B	10/27/11	5
Styrene	U	0.0019	0.0058	mg/kg	J3	8260B	10/27/11	5
1,1,1,2-Tetrachloroethane	U	0.0020	0.0058	mg/kg	J3	8260B	10/27/11	5
1,1,2,2-Tetrachloroethane	U	0.0021	0.0058	mg/kg	J3	8260B	10/27/11	5
1,1,2-Trichlorotrifluoroethane	U	0.0019	0.0058	mg/kg	J3	8260B	10/27/11	5
Tetrachloroethene	0.0026	0.0020	0.0058	mg/kg	JJ3	8260B	10/27/11	5
Toluene	U	0.0016	0.029	mg/kg	J3	8260B	10/27/11	5
1,2,3-Trichlorobenzene	U	0.0022	0.0058	mg/kg	J3	8260B	10/27/11	5
1,2,4-Trichlorobenzene	U	0.0015	0.0058	mg/kg	J3	8260B	10/27/11	5
1,1,1-Trichloroethane	U	0.0018	0.0058	mg/kg	J3	8260B	10/27/11	5
1,1,2-Trichloroethane	U	0.0018	0.0058	mg/kg	J3	8260B	10/27/11	5
Trichloroethene	U	0.0017	0.0058	mg/kg	J3	8260B	10/27/11	5
Trichlorofluoromethane	U	0.0045	0.029	mg/kg		8260B	10/27/11	5
1,2,3-Trichloropropane	U	0.0056	0.015	mg/kg		8260B	10/27/11	5
1,2,4-Trimethylbenzene	U	0.0019	0.0058	mg/kg	J3	8260B	10/27/11	5
1,2,3-Trimethylbenzene	U	0.0014	0.0058	mg/kg	J3	8260B	10/27/11	5
1,3,5-Trimethylbenzene	U	0.0017	0.0058	mg/kg	J3	8260B	10/27/11	5
Vinyl chloride	U	0.0019	0.0058	mg/kg		8260B	10/27/11	5
Xylenes, Total	U	0.0023	0.018	mg/kg	J3	8260B	10/27/11	5
Surrogate Recovery								
Toluene-d8	98.6			% Rec.		8260B	10/27/11	5
Dibromofluoromethane	99.9			% Rec.		8260B	10/27/11	5
a,a,a-Trifluorotoluene	101.			% Rec.		8260B	10/27/11	5
4-Bromofluorobenzene	111.			% Rec.		8260B	10/27/11	5

Results listed are dry weight basis.

U = ND (Not Detected)

MDL = Minimum Detection Limit = LOD

RDL = Reported Detection Limit = LOQ = PQL = EQL

Note:

This report shall not be reproduced, except in full, without the written approval from ESC.

The reported analytical results relate only to the sample submitted

Reported: 11/03/11 11:35 Printed: 11/03/11 11:43



12065 Lebanon Rd.
 Mt. Juliet, TN 37122
 (615) 758-5858
 1-800-767-5859
 Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

REPORT OF ANALYSIS

Katie Robertson
 Oregon Dept. of Env. Quality - ODEQ
 700 SE Emigrant, Suite 330
 Pendleton, OR 97801

November 03, 2011

Date Received : October 27, 2011
 Description : Rainbow Cleaners Canyon Blvd
 Sample ID : B3 11.5
 Collected By : Katie Robertson
 Collection Date : 10/25/11 15:20

ESC Sample # : L543787-05
 Site ID :
 Project # : 5209

Parameter	Dry Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Total Solids	84.			%		2540G	11/02/11	1
Volatile Organics								
Acetone	U	0.12	0.30	mg/kg		8260B	10/27/11	5
Acrylonitrile	U	0.016	0.060	mg/kg		8260B	10/27/11	5
Benzene	U	0.0017	0.0060	mg/kg		8260B	10/27/11	5
Bromobenzene	U	0.0017	0.0060	mg/kg		8260B	10/27/11	5
Bromodichloromethane	U	0.0016	0.0060	mg/kg		8260B	10/27/11	5
Bromoform	U	0.0018	0.0060	mg/kg		8260B	10/27/11	5
Bromomethane	U	0.0088	0.030	mg/kg		8260B	10/27/11	5
n-Butylbenzene	U	0.0017	0.0060	mg/kg		8260B	10/27/11	5
sec-Butylbenzene	U	0.0016	0.0060	mg/kg		8260B	10/27/11	5
tert-Butylbenzene	U	0.0016	0.0060	mg/kg		8260B	10/27/11	5
Carbon disulfide	U	0.0019	0.0060	mg/kg	J3	8260B	10/27/11	5
Carbon tetrachloride	U	0.0019	0.0060	mg/kg		8260B	10/27/11	5
Chlorobenzene	U	0.0016	0.0060	mg/kg		8260B	10/27/11	5
Chlorodibromomethane	U	0.0018	0.0060	mg/kg		8260B	10/27/11	5
Chloroethane	U	0.0058	0.030	mg/kg		8260B	10/27/11	5
2-Chloroethyl vinyl ether	U	0.0088	0.30	mg/kg	J3	8260B	10/27/11	5
Chloroform	U	0.0021	0.030	mg/kg		8260B	10/27/11	5
Chloromethane	U	0.0035	0.015	mg/kg		8260B	10/27/11	5
2-Chlorotoluene	U	0.0016	0.0060	mg/kg		8260B	10/27/11	5
4-Chlorotoluene	U	0.0014	0.0060	mg/kg		8260B	10/27/11	5
1,2-Dibromo-3-Chloropropane	U	0.010	0.030	mg/kg		8260B	10/27/11	5
1,2-Dibromoethane	U	0.0019	0.0060	mg/kg		8260B	10/27/11	5
Dibromomethane	U	0.0018	0.0060	mg/kg		8260B	10/27/11	5
1,2-Dichlorobenzene	U	0.0017	0.0060	mg/kg		8260B	10/27/11	5
1,3-Dichlorobenzene	U	0.0017	0.0060	mg/kg		8260B	10/27/11	5
1,4-Dichlorobenzene	U	0.0016	0.0060	mg/kg		8260B	10/27/11	5
Dichlorodifluoromethane	U	0.0038	0.030	mg/kg		8260B	10/27/11	5
1,1-Dichloroethane	U	0.0020	0.0060	mg/kg		8260B	10/27/11	5
1,2-Dichloroethane	U	0.0020	0.0060	mg/kg		8260B	10/27/11	5
1,1-Dichloroethene	U	0.0031	0.0060	mg/kg		8260B	10/27/11	5
cis-1,2-Dichloroethene	U	0.0018	0.0060	mg/kg		8260B	10/27/11	5
trans-1,2-Dichloroethene	U	0.0020	0.0060	mg/kg		8260B	10/27/11	5
1,2-Dichloropropane	U	0.0032	0.0060	mg/kg		8260B	10/27/11	5
1,1-Dichloropropene	U	0.0019	0.0060	mg/kg		8260B	10/27/11	5
1,3-Dichloropropane	U	0.0017	0.0060	mg/kg		8260B	10/27/11	5
cis-1,3-Dichloropropene	U	0.0019	0.0060	mg/kg		8260B	10/27/11	5
trans-1,3-Dichloropropene	U	0.0017	0.0060	mg/kg		8260B	10/27/11	5
2,2-Dichloropropane	U	0.0020	0.0060	mg/kg		8260B	10/27/11	5
Di-isopropyl ether	U	0.0018	0.0060	mg/kg		8260B	10/27/11	5
Ethylbenzene	U	0.0019	0.0060	mg/kg		8260B	10/27/11	5

Results listed are dry weight basis.

U = ND (Not Detected)

MDL = Minimum Detection Limit = LOD

RDL = Reported Detection Limit = LOQ = PQL = EQL

Note:

This report shall not be reproduced, except in full, without the written approval from ESC.

The reported analytical results relate only to the sample submitted

Reported: 11/03/11 11:35 Printed: 11/03/11 11:44



12065 Lebanon Rd.
 Mt. Juliet, TN 37122
 (615) 758-5858
 1-800-767-5859
 Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

REPORT OF ANALYSIS

Katie Robertson
 Oregon Dept. of Env. Quality - ODEQ
 700 SE Emigrant, Suite 330
 Pendleton, OR 97801

November 03, 2011

Date Received : October 27, 2011
 Description : Rainbow Cleaners Canyon Blvd
 Sample ID : B3 11.5
 Collected By : Katie Robertson
 Collection Date : 10/25/11 15:20

ESC Sample # : L543787-05
 Site ID :
 Project # : 5209

Parameter	Dry Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Hexachloro-1,3-butadiene	U	0.0019	0.0060	mg/kg		8260B	10/27/11	5
Isopropylbenzene	U	0.0016	0.0060	mg/kg		8260B	10/27/11	5
p-Isopropyltoluene	U	0.0016	0.0060	mg/kg		8260B	10/27/11	5
2-Butanone (MEK)	U	0.014	0.060	mg/kg		8260B	10/27/11	5
Methylene Chloride	0.0086	0.0065	0.030	mg/kg	J	8260B	10/27/11	5
4-Methyl-2-pentanone (MIBK)	U	0.014	0.060	mg/kg	J3	8260B	10/27/11	5
Methyl tert-butyl ether	U	0.0016	0.0060	mg/kg	J3	8260B	10/27/11	5
Naphthalene	U	0.0028	0.030	mg/kg		8260B	10/27/11	5
n-Propylbenzene	U	0.0017	0.0060	mg/kg		8260B	10/27/11	5
Styrene	U	0.0019	0.0060	mg/kg		8260B	10/27/11	5
1,1,1,2-Tetrachloroethane	U	0.0020	0.0060	mg/kg		8260B	10/27/11	5
1,1,2,2-Tetrachloroethane	U	0.0021	0.0060	mg/kg		8260B	10/27/11	5
1,1,2-Trichlorotrifluoroethane	U	0.0019	0.0060	mg/kg		8260B	10/27/11	5
Tetrachloroethene	U	0.0020	0.0060	mg/kg		8260B	10/27/11	5
Toluene	U	0.0016	0.030	mg/kg		8260B	10/27/11	5
1,2,3-Trichlorobenzene	U	0.0022	0.0060	mg/kg		8260B	10/27/11	5
1,2,4-Trichlorobenzene	U	0.0015	0.0060	mg/kg		8260B	10/27/11	5
1,1,1-Trichloroethane	U	0.0018	0.0060	mg/kg		8260B	10/27/11	5
1,1,2-Trichloroethane	U	0.0018	0.0060	mg/kg		8260B	10/27/11	5
Trichloroethene	U	0.0017	0.0060	mg/kg		8260B	10/27/11	5
Trichlorofluoromethane	U	0.0045	0.030	mg/kg		8260B	10/27/11	5
1,2,3-Trichloropropane	U	0.0056	0.015	mg/kg	J3	8260B	10/27/11	5
1,2,4-Trimethylbenzene	U	0.0019	0.0060	mg/kg		8260B	10/27/11	5
1,2,3-Trimethylbenzene	U	0.0014	0.0060	mg/kg		8260B	10/27/11	5
1,3,5-Trimethylbenzene	U	0.0017	0.0060	mg/kg		8260B	10/27/11	5
Vinyl chloride	U	0.0019	0.0060	mg/kg		8260B	10/27/11	5
Xylenes, Total	U	0.0023	0.018	mg/kg		8260B	10/27/11	5
Surrogate Recovery								
Toluene-d8	103.			% Rec.		8260B	10/27/11	5
Dibromofluoromethane	102.			% Rec.		8260B	10/27/11	5
a,a,a-Trifluorotoluene	103.			% Rec.		8260B	10/27/11	5
4-Bromofluorobenzene	105.			% Rec.		8260B	10/27/11	5

Results listed are dry weight basis.

U = ND (Not Detected)

MDL = Minimum Detection Limit = LOD

RDL = Reported Detection Limit = LOQ = PQL = EQL

Note:

This report shall not be reproduced, except in full, without the written approval from ESC.

The reported analytical results relate only to the sample submitted

Reported: 11/03/11 11:35 Printed: 11/03/11 11:44



12065 Lebanon Rd.
 Mt. Juliet, TN 37122
 (615) 758-5858
 1-800-767-5859
 Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

REPORT OF ANALYSIS

Katie Robertson
 Oregon Dept. of Env. Quality - ODEQ
 700 SE Emigrant, Suite 330
 Pendleton, OR 97801

November 03, 2011

Date Received : October 27, 2011
 Description : Rainbow Cleaners Canyon Blvd
 Sample ID : B1
 Collected By : Katie Robertson
 Collection Date : 10/25/11 13:50

ESC Sample # : L543787-06
 Site ID :
 Project # : 5209

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Volatile Organics								
Acetone	30.	11.	50.	ug/l	J	8260B	10/28/11	1
Acrolein	U	31.	50.	ug/l	J4	8260B	10/28/11	1
Acrylonitrile	U	1.7	10.	ug/l		8260B	10/28/11	1
Benzene	0.43	0.18	1.0	ug/l	J	8260B	10/28/11	1
Bromobenzene	U	0.25	1.0	ug/l		8260B	10/28/11	1
Bromodichloromethane	U	0.21	1.0	ug/l		8260B	10/28/11	1
Bromoform	U	0.46	1.0	ug/l		8260B	10/28/11	1
Bromomethane	U	0.57	5.0	ug/l		8260B	10/28/11	1
n-Butylbenzene	U	0.20	1.0	ug/l		8260B	10/28/11	1
sec-Butylbenzene	U	0.18	1.0	ug/l		8260B	10/28/11	1
tert-Butylbenzene	U	0.21	1.0	ug/l		8260B	10/28/11	1
Carbon disulfide	U	0.22	1.0	ug/l		8260B	10/28/11	1
Carbon tetrachloride	U	0.38	1.0	ug/l		8260B	10/28/11	1
Chlorobenzene	U	0.25	1.0	ug/l		8260B	10/28/11	1
Chlorodibromomethane	U	0.29	1.0	ug/l		8260B	10/28/11	1
Chloroethane	U	1.4	5.0	ug/l		8260B	10/28/11	1
2-Chloroethyl vinyl ether	U	2.7	50.	ug/l		8260B	10/28/11	1
Chloroform	U	0.22	5.0	ug/l		8260B	10/28/11	1
Chloromethane	U	0.46	2.5	ug/l		8260B	10/28/11	1
2-Chlorotoluene	U	0.17	1.0	ug/l		8260B	10/28/11	1
4-Chlorotoluene	U	0.20	1.0	ug/l		8260B	10/28/11	1
1,2-Dibromo-3-Chloropropane	U	1.1	5.0	ug/l		8260B	10/28/11	1
1,2-Dibromoethane	U	0.44	1.0	ug/l		8260B	10/28/11	1
Dibromomethane	U	0.51	1.0	ug/l		8260B	10/28/11	1
1,2-Dichlorobenzene	U	0.26	1.0	ug/l		8260B	10/28/11	1
1,3-Dichlorobenzene	U	0.25	1.0	ug/l		8260B	10/28/11	1
1,4-Dichlorobenzene	U	0.19	1.0	ug/l		8260B	10/28/11	1
Dichlorodifluoromethane	U	0.57	5.0	ug/l		8260B	10/28/11	1
1,1-Dichloroethane	U	0.29	1.0	ug/l		8260B	10/28/11	1
1,2-Dichloroethane	U	0.26	1.0	ug/l		8260B	10/28/11	1
1,1-Dichloroethene	U	0.40	1.0	ug/l		8260B	10/28/11	1
cis-1,2-Dichloroethene	U	0.27	1.0	ug/l		8260B	10/28/11	1
trans-1,2-Dichloroethene	U	0.29	1.0	ug/l		8260B	10/28/11	1
1,2-Dichloropropane	U	0.47	1.0	ug/l		8260B	10/28/11	1
1,1-Dichloropropene	U	0.27	1.0	ug/l		8260B	10/28/11	1
1,3-Dichloropropane	U	0.37	1.0	ug/l		8260B	10/28/11	1
cis-1,3-Dichloropropene	U	0.23	1.0	ug/l		8260B	10/28/11	1
trans-1,3-Dichloropropene	U	0.39	1.0	ug/l		8260B	10/28/11	1
2,2-Dichloropropane	U	0.35	1.0	ug/l		8260B	10/28/11	1
Di-isopropyl ether	U	0.24	1.0	ug/l		8260B	10/28/11	1
Ethylbenzene	U	0.27	1.0	ug/l		8260B	10/28/11	1
Hexachloro-1,3-butadiene	U	0.38	1.0	ug/l		8260B	10/28/11	1

U = ND (Not Detected)
 RDL = Reported Detection Limit = LOQ = PQL = EQL
 MDL = Minimum Detection Limit = LOD = SQL(TRRP)

Note:

The reported analytical results relate only to the sample submitted.
 This report shall not be reproduced, except in full, without the written approval from ESC.

Reported: 11/03/11 11:35 Printed: 11/03/11 11:44



12065 Lebanon Rd.
 Mt. Juliet, TN 37122
 (615) 758-5858
 1-800-767-5859
 Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

REPORT OF ANALYSIS

Katie Robertson
 Oregon Dept. of Env. Quality - ODEQ
 700 SE Emigrant, Suite 330
 Pendleton, OR 97801

November 03, 2011

Date Received : October 27, 2011
 Description : Rainbow Cleaners Canyon Blvd
 Sample ID : B1
 Collected By : Katie Robertson
 Collection Date : 10/25/11 13:50

ESC Sample # : L543787-06

Site ID :

Project # : 5209

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Isopropylbenzene	U	0.18	1.0	ug/l		8260B	10/28/11	1
p-Isopropyltoluene	U	0.17	1.0	ug/l		8260B	10/28/11	1
2-Butanone (MEK)	4.0	3.0	10.	ug/l	J	8260B	10/28/11	1
Methylene Chloride	U	0.79	5.0	ug/l		8260B	10/28/11	1
4-Methyl-2-pentanone (MIBK)	U	0.80	10.	ug/l		8260B	10/28/11	1
Methyl tert-butyl ether	U	0.27	1.0	ug/l		8260B	10/28/11	1
Naphthalene	U	0.69	5.0	ug/l		8260B	10/28/11	1
n-Propylbenzene	U	0.18	1.0	ug/l		8260B	10/28/11	1
Styrene	U	0.30	1.0	ug/l		8260B	10/28/11	1
1,1,1,2-Tetrachloroethane	U	0.31	1.0	ug/l		8260B	10/28/11	1
1,1,2,2-Tetrachloroethane	U	0.29	1.0	ug/l		8260B	10/28/11	1
1,1,2-Trichlorotrifluoroethane	U	0.38	1.0	ug/l		8260B	10/28/11	1
Tetrachloroethene	3.2	0.24	1.0	ug/l	J4	8260B	10/28/11	1
Toluene	2.4	0.16	5.0	ug/l	J	8260B	10/28/11	1
1,2,3-Trichlorobenzene	U	0.30	1.0	ug/l		8260B	10/28/11	1
1,2,4-Trichlorobenzene	U	0.21	1.0	ug/l		8260B	10/28/11	1
1,1,1-Trichloroethane	U	0.24	1.0	ug/l		8260B	10/28/11	1
1,1,2-Trichloroethane	U	0.38	1.0	ug/l		8260B	10/28/11	1
Trichloroethene	U	0.29	1.0	ug/l		8260B	10/28/11	1
Trichlorofluoromethane	U	0.49	5.0	ug/l		8260B	10/28/11	1
1,2,3-Trichloropropane	U	0.52	2.5	ug/l		8260B	10/28/11	1
1,2,4-Trimethylbenzene	U	0.20	1.0	ug/l		8260B	10/28/11	1
1,2,3-Trimethylbenzene	U	0.17	1.0	ug/l		8260B	10/28/11	1
1,3,5-Trimethylbenzene	U	0.18	1.0	ug/l		8260B	10/28/11	1
Vinyl chloride	U	0.28	1.0	ug/l		8260B	10/28/11	1
Xylenes, Total	U	0.86	3.0	ug/l		8260B	10/28/11	1
Surrogate Recovery								
Toluene-d8	108.			% Rec.		8260B	10/28/11	1
Dibromofluoromethane	104.			% Rec.		8260B	10/28/11	1
4-Bromofluorobenzene	106.			% Rec.		8260B	10/28/11	1

U = ND (Not Detected)
 RDL = Reported Detection Limit = LOQ = PQL = EQL
 MDL = Minimum Detection Limit = LOD = SQL(TRRP)

Note:

The reported analytical results relate only to the sample submitted.
 This report shall not be reproduced, except in full, without the written approval from ESC.

Reported: 11/03/11 11:35 Printed: 11/03/11 11:44



12065 Lebanon Rd.
 Mt. Juliet, TN 37122
 (615) 758-5858
 1-800-767-5859
 Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

REPORT OF ANALYSIS

Katie Robertson
 Oregon Dept. of Env. Quality - ODEQ
 700 SE Emigrant, Suite 330
 Pendleton, OR 97801

November 03, 2011

Date Received : October 27, 2011
 Description : Rainbow Cleaners Canyon Blvd
 Sample ID : B2
 Collected By : Katie Robertson
 Collection Date : 10/25/11 14:40

ESC Sample # : L543787-07
 Site ID :
 Project # : 5209

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Volatile Organics								
Acetone	U	11.	50.	ug/l		8260B	10/28/11	1
Acrolein	U	31.	50.	ug/l	J4	8260B	10/28/11	1
Acrylonitrile	U	1.7	10.	ug/l		8260B	10/28/11	1
Benzene	U	0.18	1.0	ug/l		8260B	10/28/11	1
Bromobenzene	U	0.25	1.0	ug/l		8260B	10/28/11	1
Bromodichloromethane	U	0.21	1.0	ug/l		8260B	10/28/11	1
Bromoform	U	0.46	1.0	ug/l		8260B	10/28/11	1
Bromomethane	U	0.57	5.0	ug/l		8260B	10/28/11	1
n-Butylbenzene	U	0.20	1.0	ug/l		8260B	10/28/11	1
sec-Butylbenzene	U	0.18	1.0	ug/l		8260B	10/28/11	1
tert-Butylbenzene	U	0.21	1.0	ug/l		8260B	10/28/11	1
Carbon disulfide	U	0.22	1.0	ug/l		8260B	10/28/11	1
Carbon tetrachloride	U	0.38	1.0	ug/l		8260B	10/28/11	1
Chlorobenzene	U	0.25	1.0	ug/l		8260B	10/28/11	1
Chlorodibromomethane	U	0.29	1.0	ug/l		8260B	10/28/11	1
Chloroethane	U	1.4	5.0	ug/l		8260B	10/28/11	1
2-Chloroethyl vinyl ether	U	2.7	50.	ug/l		8260B	10/28/11	1
Chloroform	U	0.22	5.0	ug/l		8260B	10/28/11	1
Chloromethane	U	0.46	2.5	ug/l		8260B	10/28/11	1
2-Chlorotoluene	U	0.17	1.0	ug/l		8260B	10/28/11	1
4-Chlorotoluene	U	0.20	1.0	ug/l		8260B	10/28/11	1
1,2-Dibromo-3-Chloropropane	U	1.1	5.0	ug/l		8260B	10/28/11	1
1,2-Dibromoethane	U	0.44	1.0	ug/l		8260B	10/28/11	1
Dibromomethane	U	0.51	1.0	ug/l		8260B	10/28/11	1
1,2-Dichlorobenzene	U	0.26	1.0	ug/l		8260B	10/28/11	1
1,3-Dichlorobenzene	U	0.25	1.0	ug/l		8260B	10/28/11	1
1,4-Dichlorobenzene	U	0.19	1.0	ug/l		8260B	10/28/11	1
Dichlorodifluoromethane	U	0.57	5.0	ug/l		8260B	10/28/11	1
1,1-Dichloroethane	U	0.29	1.0	ug/l		8260B	10/28/11	1
1,2-Dichloroethane	U	0.26	1.0	ug/l		8260B	10/28/11	1
1,1-Dichloroethene	U	0.40	1.0	ug/l		8260B	10/28/11	1
cis-1,2-Dichloroethene	U	0.27	1.0	ug/l		8260B	10/28/11	1
trans-1,2-Dichloroethene	U	0.29	1.0	ug/l		8260B	10/28/11	1
1,2-Dichloropropane	U	0.47	1.0	ug/l		8260B	10/28/11	1
1,1-Dichloropropene	U	0.27	1.0	ug/l		8260B	10/28/11	1
1,3-Dichloropropane	U	0.37	1.0	ug/l		8260B	10/28/11	1
cis-1,3-Dichloropropene	U	0.23	1.0	ug/l		8260B	10/28/11	1
trans-1,3-Dichloropropene	U	0.39	1.0	ug/l		8260B	10/28/11	1
2,2-Dichloropropane	U	0.35	1.0	ug/l		8260B	10/28/11	1
Di-isopropyl ether	U	0.24	1.0	ug/l		8260B	10/28/11	1
Ethylbenzene	U	0.27	1.0	ug/l		8260B	10/28/11	1
Hexachloro-1,3-butadiene	U	0.38	1.0	ug/l		8260B	10/28/11	1

U = ND (Not Detected)
 RDL = Reported Detection Limit = LOQ = PQL = EQL
 MDL = Minimum Detection Limit = LOD = SQL(TRRP)

Note:
 The reported analytical results relate only to the sample submitted.
 This report shall not be reproduced, except in full, without the written approval from ESC.

Reported: 11/03/11 11:35 Printed: 11/03/11 11:44



12065 Lebanon Rd.
 Mt. Juliet, TN 37122
 (615) 758-5858
 1-800-767-5859
 Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

REPORT OF ANALYSIS

Katie Robertson
 Oregon Dept. of Env. Quality - ODEQ
 700 SE Emigrant, Suite 330
 Pendleton, OR 97801

November 03, 2011

Date Received : October 27, 2011
 Description : Rainbow Cleaners Canyon Blvd
 Sample ID : B2
 Collected By : Katie Robertson
 Collection Date : 10/25/11 14:40

ESC Sample # : L543787-07

Site ID :

Project # : 5209

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Isopropylbenzene	U	0.18	1.0	ug/l		8260B	10/28/11	1
p-Isopropyltoluene	U	0.17	1.0	ug/l		8260B	10/28/11	1
2-Butanone (MEK)	U	3.0	10.	ug/l		8260B	10/28/11	1
Methylene Chloride	U	0.79	5.0	ug/l		8260B	10/28/11	1
4-Methyl-2-pentanone (MIBK)	U	0.80	10.	ug/l		8260B	10/28/11	1
Methyl tert-butyl ether	U	0.27	1.0	ug/l		8260B	10/28/11	1
Naphthalene	U	0.69	5.0	ug/l		8260B	10/28/11	1
n-Propylbenzene	U	0.18	1.0	ug/l		8260B	10/28/11	1
Styrene	U	0.30	1.0	ug/l		8260B	10/28/11	1
1,1,1,2-Tetrachloroethane	U	0.31	1.0	ug/l		8260B	10/28/11	1
1,1,2,2-Tetrachloroethane	U	0.29	1.0	ug/l		8260B	10/28/11	1
1,1,2-Trichlorotrifluoroethane	U	0.38	1.0	ug/l		8260B	10/28/11	1
Tetrachloroethene	4.0	0.24	1.0	ug/l	J4	8260B	10/28/11	1
Toluene	U	0.16	5.0	ug/l		8260B	10/28/11	1
1,2,3-Trichlorobenzene	U	0.30	1.0	ug/l		8260B	10/28/11	1
1,2,4-Trichlorobenzene	U	0.21	1.0	ug/l		8260B	10/28/11	1
1,1,1-Trichloroethane	U	0.24	1.0	ug/l		8260B	10/28/11	1
1,1,2-Trichloroethane	U	0.38	1.0	ug/l		8260B	10/28/11	1
Trichloroethene	U	0.29	1.0	ug/l		8260B	10/28/11	1
Trichlorofluoromethane	U	0.49	5.0	ug/l		8260B	10/28/11	1
1,2,3-Trichloropropane	U	0.52	2.5	ug/l		8260B	10/28/11	1
1,2,4-Trimethylbenzene	U	0.20	1.0	ug/l		8260B	10/28/11	1
1,2,3-Trimethylbenzene	U	0.17	1.0	ug/l		8260B	10/28/11	1
1,3,5-Trimethylbenzene	U	0.18	1.0	ug/l		8260B	10/28/11	1
Vinyl chloride	U	0.28	1.0	ug/l		8260B	10/28/11	1
Xylenes, Total	U	0.86	3.0	ug/l		8260B	10/28/11	1
Surrogate Recovery								
Toluene-d8	108.			% Rec.		8260B	10/28/11	1
Dibromofluoromethane	103.			% Rec.		8260B	10/28/11	1
4-Bromofluorobenzene	103.			% Rec.		8260B	10/28/11	1

U = ND (Not Detected)
 RDL = Reported Detection Limit = LOQ = PQL = EQL
 MDL = Minimum Detection Limit = LOD = SQL(TRRP)

Note:

The reported analytical results relate only to the sample submitted.
 This report shall not be reproduced, except in full, without the written approval from ESC.

Reported: 11/03/11 11:35 Printed: 11/03/11 11:44



12065 Lebanon Rd.
 Mt. Juliet, TN 37122
 (615) 758-5858
 1-800-767-5859
 Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

REPORT OF ANALYSIS

Katie Robertson
 Oregon Dept. of Env. Quality - ODEQ
 700 SE Emigrant, Suite 330
 Pendleton, OR 97801

November 03, 2011

Date Received : October 27, 2011
 Description : Rainbow Cleaners Canyon Blvd
 Sample ID : B2D
 Collected By : Katie Robertson
 Collection Date : 10/25/11 14:40

ESC Sample # : L543787-08
 Site ID :
 Project # : 5209

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Volatile Organics								
Acetone	U	11.	50.	ug/l		8260B	10/28/11	1
Acrolein	U	31.	50.	ug/l	J4	8260B	10/28/11	1
Acrylonitrile	U	1.7	10.	ug/l		8260B	10/28/11	1
Benzene	U	0.18	1.0	ug/l		8260B	10/28/11	1
Bromobenzene	U	0.25	1.0	ug/l		8260B	10/28/11	1
Bromodichloromethane	U	0.21	1.0	ug/l		8260B	10/28/11	1
Bromoform	U	0.46	1.0	ug/l		8260B	10/28/11	1
Bromomethane	U	0.57	5.0	ug/l		8260B	10/28/11	1
n-Butylbenzene	U	0.20	1.0	ug/l		8260B	10/28/11	1
sec-Butylbenzene	U	0.18	1.0	ug/l		8260B	10/28/11	1
tert-Butylbenzene	U	0.21	1.0	ug/l		8260B	10/28/11	1
Carbon disulfide	U	0.22	1.0	ug/l		8260B	10/28/11	1
Carbon tetrachloride	U	0.38	1.0	ug/l		8260B	10/28/11	1
Chlorobenzene	U	0.25	1.0	ug/l		8260B	10/28/11	1
Chlorodibromomethane	U	0.29	1.0	ug/l		8260B	10/28/11	1
Chloroethane	U	1.4	5.0	ug/l		8260B	10/28/11	1
2-Chloroethyl vinyl ether	U	2.7	50.	ug/l		8260B	10/28/11	1
Chloroform	U	0.22	5.0	ug/l		8260B	10/28/11	1
Chloromethane	U	0.46	2.5	ug/l		8260B	10/28/11	1
2-Chlorotoluene	U	0.17	1.0	ug/l		8260B	10/28/11	1
4-Chlorotoluene	U	0.20	1.0	ug/l		8260B	10/28/11	1
1,2-Dibromo-3-Chloropropane	U	1.1	5.0	ug/l		8260B	10/28/11	1
1,2-Dibromoethane	U	0.44	1.0	ug/l		8260B	10/28/11	1
Dibromomethane	U	0.51	1.0	ug/l		8260B	10/28/11	1
1,2-Dichlorobenzene	U	0.26	1.0	ug/l		8260B	10/28/11	1
1,3-Dichlorobenzene	U	0.25	1.0	ug/l		8260B	10/28/11	1
1,4-Dichlorobenzene	U	0.19	1.0	ug/l		8260B	10/28/11	1
Dichlorodifluoromethane	U	0.57	5.0	ug/l		8260B	10/28/11	1
1,1-Dichloroethane	U	0.29	1.0	ug/l		8260B	10/28/11	1
1,2-Dichloroethane	U	0.26	1.0	ug/l		8260B	10/28/11	1
1,1-Dichloroethene	U	0.40	1.0	ug/l		8260B	10/28/11	1
cis-1,2-Dichloroethene	U	0.27	1.0	ug/l		8260B	10/28/11	1
trans-1,2-Dichloroethene	U	0.29	1.0	ug/l		8260B	10/28/11	1
1,2-Dichloropropane	U	0.47	1.0	ug/l		8260B	10/28/11	1
1,1-Dichloropropene	U	0.27	1.0	ug/l		8260B	10/28/11	1
1,3-Dichloropropane	U	0.37	1.0	ug/l		8260B	10/28/11	1
cis-1,3-Dichloropropene	U	0.23	1.0	ug/l		8260B	10/28/11	1
trans-1,3-Dichloropropene	U	0.39	1.0	ug/l		8260B	10/28/11	1
2,2-Dichloropropane	U	0.35	1.0	ug/l		8260B	10/28/11	1
Di-isopropyl ether	U	0.24	1.0	ug/l		8260B	10/28/11	1
Ethylbenzene	U	0.27	1.0	ug/l		8260B	10/28/11	1
Hexachloro-1,3-butadiene	U	0.38	1.0	ug/l		8260B	10/28/11	1

U = ND (Not Detected)
 RDL = Reported Detection Limit = LOQ = PQL = EQL
 MDL = Minimum Detection Limit = LOD = SQL(TRRP)

Note:

The reported analytical results relate only to the sample submitted.
 This report shall not be reproduced, except in full, without the written approval from ESC.

Reported: 11/03/11 11:35 Printed: 11/03/11 11:44



12065 Lebanon Rd.
 Mt. Juliet, TN 37122
 (615) 758-5858
 1-800-767-5859
 Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

REPORT OF ANALYSIS

Katie Robertson
 Oregon Dept. of Env. Quality - ODEQ
 700 SE Emigrant, Suite 330
 Pendleton, OR 97801

November 03, 2011

Date Received : October 27, 2011
 Description : Rainbow Cleaners Canyon Blvd
 Sample ID : B2D
 Collected By : Katie Robertson
 Collection Date : 10/25/11 14:40

ESC Sample # : L543787-08
 Site ID :
 Project # : 5209

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Isopropylbenzene	U	0.18	1.0	ug/l		8260B	10/28/11	1
p-Isopropyltoluene	U	0.17	1.0	ug/l		8260B	10/28/11	1
2-Butanone (MEK)	U	3.0	10.	ug/l		8260B	10/28/11	1
Methylene Chloride	U	0.79	5.0	ug/l		8260B	10/28/11	1
4-Methyl-2-pentanone (MIBK)	U	0.80	10.	ug/l		8260B	10/28/11	1
Methyl tert-butyl ether	U	0.27	1.0	ug/l		8260B	10/28/11	1
Naphthalene	U	0.69	5.0	ug/l		8260B	10/28/11	1
n-Propylbenzene	U	0.18	1.0	ug/l		8260B	10/28/11	1
Styrene	U	0.30	1.0	ug/l		8260B	10/28/11	1
1,1,1,2-Tetrachloroethane	U	0.31	1.0	ug/l		8260B	10/28/11	1
1,1,2,2-Tetrachloroethane	U	0.29	1.0	ug/l		8260B	10/28/11	1
1,1,2-Trichlorotrifluoroethane	U	0.38	1.0	ug/l		8260B	10/28/11	1
Tetrachloroethene	4.0	0.24	1.0	ug/l	J4	8260B	10/28/11	1
Toluene	U	0.16	5.0	ug/l		8260B	10/28/11	1
1,2,3-Trichlorobenzene	U	0.30	1.0	ug/l		8260B	10/28/11	1
1,2,4-Trichlorobenzene	U	0.21	1.0	ug/l		8260B	10/28/11	1
1,1,1-Trichloroethane	U	0.24	1.0	ug/l		8260B	10/28/11	1
1,1,2-Trichloroethane	U	0.38	1.0	ug/l		8260B	10/28/11	1
Trichloroethene	U	0.29	1.0	ug/l		8260B	10/28/11	1
Trichlorofluoromethane	U	0.49	5.0	ug/l		8260B	10/28/11	1
1,2,3-Trichloropropane	U	0.52	2.5	ug/l		8260B	10/28/11	1
1,2,4-Trimethylbenzene	U	0.20	1.0	ug/l		8260B	10/28/11	1
1,2,3-Trimethylbenzene	U	0.17	1.0	ug/l		8260B	10/28/11	1
1,3,5-Trimethylbenzene	U	0.18	1.0	ug/l		8260B	10/28/11	1
Vinyl chloride	U	0.28	1.0	ug/l		8260B	10/28/11	1
Xylenes, Total	U	0.86	3.0	ug/l		8260B	10/28/11	1
Surrogate Recovery								
Toluene-d8	106.			% Rec.		8260B	10/28/11	1
Dibromofluoromethane	108.			% Rec.		8260B	10/28/11	1
4-Bromofluorobenzene	103.			% Rec.		8260B	10/28/11	1

U = ND (Not Detected)
 RDL = Reported Detection Limit = LOQ = PQL = EQL
 MDL = Minimum Detection Limit = LOD = SQL(TRRP)

Note:

The reported analytical results relate only to the sample submitted.
 This report shall not be reproduced, except in full, without the written approval from ESC.

Reported: 11/03/11 11:35 Printed: 11/03/11 11:44



12065 Lebanon Rd.
 Mt. Juliet, TN 37122
 (615) 758-5858
 1-800-767-5859
 Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

REPORT OF ANALYSIS

Katie Robertson
 Oregon Dept. of Env. Quality - ODEQ
 700 SE Emigrant, Suite 330
 Pendleton, OR 97801

November 03, 2011

Date Received : October 27, 2011
 Description : Rainbow Cleaners Canyon Blvd
 Sample ID : B3
 Collected By : Katie Robertson
 Collection Date : 10/25/11 15:30

ESC Sample # : L543787-09
 Site ID :
 Project # : 5209

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Volatile Organics								
Acetone	19.	11.	50.	ug/l	J	8260B	10/28/11	1
Acrolein	U	31.	50.	ug/l	J4	8260B	10/28/11	1
Acrylonitrile	U	1.7	10.	ug/l		8260B	10/28/11	1
Benzene	U	0.18	1.0	ug/l		8260B	10/28/11	1
Bromobenzene	U	0.25	1.0	ug/l		8260B	10/28/11	1
Bromodichloromethane	U	0.21	1.0	ug/l		8260B	10/28/11	1
Bromoform	U	0.46	1.0	ug/l		8260B	10/28/11	1
Bromomethane	U	0.57	5.0	ug/l		8260B	10/28/11	1
n-Butylbenzene	U	0.20	1.0	ug/l		8260B	10/28/11	1
sec-Butylbenzene	U	0.18	1.0	ug/l		8260B	10/28/11	1
tert-Butylbenzene	U	0.21	1.0	ug/l		8260B	10/28/11	1
Carbon disulfide	U	0.22	1.0	ug/l		8260B	10/28/11	1
Carbon tetrachloride	U	0.38	1.0	ug/l		8260B	10/28/11	1
Chlorobenzene	U	0.25	1.0	ug/l		8260B	10/28/11	1
Chlorodibromomethane	U	0.29	1.0	ug/l		8260B	10/28/11	1
Chloroethane	U	1.4	5.0	ug/l		8260B	10/28/11	1
2-Chloroethyl vinyl ether	U	2.7	50.	ug/l		8260B	10/28/11	1
Chloroform	U	0.22	5.0	ug/l		8260B	10/28/11	1
Chloromethane	U	0.46	2.5	ug/l		8260B	10/28/11	1
2-Chlorotoluene	U	0.17	1.0	ug/l		8260B	10/28/11	1
4-Chlorotoluene	U	0.20	1.0	ug/l		8260B	10/28/11	1
1,2-Dibromo-3-Chloropropane	U	1.1	5.0	ug/l		8260B	10/28/11	1
1,2-Dibromoethane	U	0.44	1.0	ug/l		8260B	10/28/11	1
Dibromomethane	U	0.51	1.0	ug/l		8260B	10/28/11	1
1,2-Dichlorobenzene	U	0.26	1.0	ug/l		8260B	10/28/11	1
1,3-Dichlorobenzene	U	0.25	1.0	ug/l		8260B	10/28/11	1
1,4-Dichlorobenzene	U	0.19	1.0	ug/l		8260B	10/28/11	1
Dichlorodifluoromethane	U	0.57	5.0	ug/l		8260B	10/28/11	1
1,1-Dichloroethane	U	0.29	1.0	ug/l		8260B	10/28/11	1
1,2-Dichloroethane	U	0.26	1.0	ug/l		8260B	10/28/11	1
1,1-Dichloroethene	U	0.40	1.0	ug/l		8260B	10/28/11	1
cis-1,2-Dichloroethene	U	0.27	1.0	ug/l		8260B	10/28/11	1
trans-1,2-Dichloroethene	U	0.29	1.0	ug/l		8260B	10/28/11	1
1,2-Dichloropropane	U	0.47	1.0	ug/l		8260B	10/28/11	1
1,1-Dichloropropene	U	0.27	1.0	ug/l		8260B	10/28/11	1
1,3-Dichloropropane	U	0.37	1.0	ug/l		8260B	10/28/11	1
cis-1,3-Dichloropropene	U	0.23	1.0	ug/l		8260B	10/28/11	1
trans-1,3-Dichloropropene	U	0.39	1.0	ug/l		8260B	10/28/11	1
2,2-Dichloropropane	U	0.35	1.0	ug/l		8260B	10/28/11	1
Di-isopropyl ether	U	0.24	1.0	ug/l		8260B	10/28/11	1
Ethylbenzene	U	0.27	1.0	ug/l		8260B	10/28/11	1
Hexachloro-1,3-butadiene	U	0.38	1.0	ug/l		8260B	10/28/11	1

U = ND (Not Detected)
 RDL = Reported Detection Limit = LOQ = PQL = EQL
 MDL = Minimum Detection Limit = LOD = SQL(TRRP)

Note:

The reported analytical results relate only to the sample submitted.
 This report shall not be reproduced, except in full, without the written approval from ESC.

Reported: 11/03/11 11:35 Printed: 11/03/11 11:44



12065 Lebanon Rd.
 Mt. Juliet, TN 37122
 (615) 758-5858
 1-800-767-5859
 Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

REPORT OF ANALYSIS

Katie Robertson
 Oregon Dept. of Env. Quality - ODEQ
 700 SE Emigrant, Suite 330
 Pendleton, OR 97801

November 03, 2011

Date Received : October 27, 2011
 Description : Rainbow Cleaners Canyon Blvd
 Sample ID : B3
 Collected By : Katie Robertson
 Collection Date : 10/25/11 15:30

ESC Sample # : L543787-09
 Site ID :
 Project # : 5209

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Isopropylbenzene	U	0.18	1.0	ug/l		8260B	10/28/11	1
p-Isopropyltoluene	U	0.17	1.0	ug/l		8260B	10/28/11	1
2-Butanone (MEK)	U	3.0	10.	ug/l		8260B	10/28/11	1
Methylene Chloride	U	0.79	5.0	ug/l		8260B	10/28/11	1
4-Methyl-2-pentanone (MIBK)	U	0.80	10.	ug/l		8260B	10/28/11	1
Methyl tert-butyl ether	U	0.27	1.0	ug/l		8260B	10/28/11	1
Naphthalene	U	0.69	5.0	ug/l		8260B	10/28/11	1
n-Propylbenzene	U	0.18	1.0	ug/l		8260B	10/28/11	1
Styrene	U	0.30	1.0	ug/l		8260B	10/28/11	1
1,1,1,2-Tetrachloroethane	U	0.31	1.0	ug/l		8260B	10/28/11	1
1,1,2,2-Tetrachloroethane	U	0.29	1.0	ug/l		8260B	10/28/11	1
1,1,2-Trichlorotrifluoroethane	U	0.38	1.0	ug/l		8260B	10/28/11	1
Tetrachloroethene	U	0.24	1.0	ug/l	J4	8260B	10/28/11	1
Toluene	0.69	0.16	5.0	ug/l	J	8260B	10/28/11	1
1,2,3-Trichlorobenzene	U	0.30	1.0	ug/l		8260B	10/28/11	1
1,2,4-Trichlorobenzene	U	0.21	1.0	ug/l		8260B	10/28/11	1
1,1,1-Trichloroethane	U	0.24	1.0	ug/l		8260B	10/28/11	1
1,1,2-Trichloroethane	U	0.38	1.0	ug/l		8260B	10/28/11	1
Trichloroethene	U	0.29	1.0	ug/l		8260B	10/28/11	1
Trichlorofluoromethane	U	0.49	5.0	ug/l		8260B	10/28/11	1
1,2,3-Trichloropropane	U	0.52	2.5	ug/l		8260B	10/28/11	1
1,2,4-Trimethylbenzene	U	0.20	1.0	ug/l		8260B	10/28/11	1
1,2,3-Trimethylbenzene	U	0.17	1.0	ug/l		8260B	10/28/11	1
1,3,5-Trimethylbenzene	U	0.18	1.0	ug/l		8260B	10/28/11	1
Vinyl chloride	U	0.28	1.0	ug/l		8260B	10/28/11	1
Xylenes, Total	U	0.86	3.0	ug/l		8260B	10/28/11	1
Surrogate Recovery								
Toluene-d8	106.			% Rec.		8260B	10/28/11	1
Dibromofluoromethane	102.			% Rec.		8260B	10/28/11	1
4-Bromofluorobenzene	107.			% Rec.		8260B	10/28/11	1

U = ND (Not Detected)
 RDL = Reported Detection Limit = LOQ = PQL = EQL
 MDL = Minimum Detection Limit = LOD = SQL(TRRP)

Note:

The reported analytical results relate only to the sample submitted.
 This report shall not be reproduced, except in full, without the written approval from ESC.

Reported: 11/03/11 11:35 Printed: 11/03/11 11:44



12065 Lebanon Rd.
 Mt. Juliet, TN 37122
 (615) 758-5858
 1-800-767-5859
 Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

REPORT OF ANALYSIS

Katie Robertson
 Oregon Dept. of Env. Quality - ODEQ
 700 SE Emigrant, Suite 330
 Pendleton, OR 97801

November 03, 2011

Date Received : October 27, 2011
 Description : Rainbow Cleaners Canyon Blvd
 Sample ID : TRANSFER
 Collected By : Katie Robertson
 Collection Date : 10/25/11 13:00

ESC Sample # : L543787-10
 Site ID :
 Project # : 5209

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Volatile Organics								
Acetone	U	11.	50.	ug/l		8260B	10/28/11	1
Acrolein	U	31.	50.	ug/l	J4	8260B	10/28/11	1
Acrylonitrile	U	1.7	10.	ug/l		8260B	10/28/11	1
Benzene	U	0.18	1.0	ug/l		8260B	10/28/11	1
Bromobenzene	U	0.25	1.0	ug/l		8260B	10/28/11	1
Bromodichloromethane	U	0.21	1.0	ug/l		8260B	10/28/11	1
Bromoform	U	0.46	1.0	ug/l		8260B	10/28/11	1
Bromomethane	U	0.57	5.0	ug/l		8260B	10/28/11	1
n-Butylbenzene	U	0.20	1.0	ug/l		8260B	10/28/11	1
sec-Butylbenzene	U	0.18	1.0	ug/l		8260B	10/28/11	1
tert-Butylbenzene	U	0.21	1.0	ug/l		8260B	10/28/11	1
Carbon disulfide	U	0.22	1.0	ug/l		8260B	10/28/11	1
Carbon tetrachloride	U	0.38	1.0	ug/l		8260B	10/28/11	1
Chlorobenzene	U	0.25	1.0	ug/l		8260B	10/28/11	1
Chlorodibromomethane	U	0.29	1.0	ug/l		8260B	10/28/11	1
Chloroethane	U	1.4	5.0	ug/l		8260B	10/28/11	1
2-Chloroethyl vinyl ether	U	2.7	50.	ug/l		8260B	10/28/11	1
Chloroform	1.5	0.22	5.0	ug/l	J	8260B	10/28/11	1
Chloromethane	U	0.46	2.5	ug/l		8260B	10/28/11	1
2-Chlorotoluene	U	0.17	1.0	ug/l		8260B	10/28/11	1
4-Chlorotoluene	U	0.20	1.0	ug/l		8260B	10/28/11	1
1,2-Dibromo-3-Chloropropane	U	1.1	5.0	ug/l		8260B	10/28/11	1
1,2-Dibromoethane	U	0.44	1.0	ug/l		8260B	10/28/11	1
Dibromomethane	U	0.51	1.0	ug/l		8260B	10/28/11	1
1,2-Dichlorobenzene	U	0.26	1.0	ug/l		8260B	10/28/11	1
1,3-Dichlorobenzene	U	0.25	1.0	ug/l		8260B	10/28/11	1
1,4-Dichlorobenzene	U	0.19	1.0	ug/l		8260B	10/28/11	1
Dichlorodifluoromethane	U	0.57	5.0	ug/l		8260B	10/28/11	1
1,1-Dichloroethane	U	0.29	1.0	ug/l		8260B	10/28/11	1
1,2-Dichloroethane	U	0.26	1.0	ug/l		8260B	10/28/11	1
1,1-Dichloroethene	U	0.40	1.0	ug/l		8260B	10/28/11	1
cis-1,2-Dichloroethene	U	0.27	1.0	ug/l		8260B	10/28/11	1
trans-1,2-Dichloroethene	U	0.29	1.0	ug/l		8260B	10/28/11	1
1,2-Dichloropropane	U	0.47	1.0	ug/l		8260B	10/28/11	1
1,1-Dichloropropene	U	0.27	1.0	ug/l		8260B	10/28/11	1
1,3-Dichloropropane	U	0.37	1.0	ug/l		8260B	10/28/11	1
cis-1,3-Dichloropropene	U	0.23	1.0	ug/l		8260B	10/28/11	1
trans-1,3-Dichloropropene	U	0.39	1.0	ug/l		8260B	10/28/11	1
2,2-Dichloropropane	U	0.35	1.0	ug/l		8260B	10/28/11	1
Di-isopropyl ether	U	0.24	1.0	ug/l		8260B	10/28/11	1
Ethylbenzene	U	0.27	1.0	ug/l		8260B	10/28/11	1
Hexachloro-1,3-butadiene	U	0.38	1.0	ug/l		8260B	10/28/11	1

U = ND (Not Detected)
 RDL = Reported Detection Limit = LOQ = PQL = EQL
 MDL = Minimum Detection Limit = LOD = SQL(TRRP)

Note:

The reported analytical results relate only to the sample submitted.
 This report shall not be reproduced, except in full, without the written approval from ESC.

Reported: 11/03/11 11:35 Printed: 11/03/11 11:44



12065 Lebanon Rd.
 Mt. Juliet, TN 37122
 (615) 758-5858
 1-800-767-5859
 Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

REPORT OF ANALYSIS

Katie Robertson
 Oregon Dept. of Env. Quality - ODEQ
 700 SE Emigrant, Suite 330
 Pendleton, OR 97801

November 03, 2011

Date Received : October 27, 2011
 Description : Rainbow Cleaners Canyon Blvd
 Sample ID : TRANSFER
 Collected By : Katie Robertson
 Collection Date : 10/25/11 13:00

ESC Sample # : L543787-10

Site ID :

Project # : 5209

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Isopropylbenzene	U	0.18	1.0	ug/l		8260B	10/28/11	1
p-Isopropyltoluene	U	0.17	1.0	ug/l		8260B	10/28/11	1
2-Butanone (MEK)	U	3.0	10.	ug/l		8260B	10/28/11	1
Methylene Chloride	U	0.79	5.0	ug/l		8260B	10/28/11	1
4-Methyl-2-pentanone (MIBK)	U	0.80	10.	ug/l		8260B	10/28/11	1
Methyl tert-butyl ether	U	0.27	1.0	ug/l		8260B	10/28/11	1
Naphthalene	U	0.69	5.0	ug/l		8260B	10/28/11	1
n-Propylbenzene	U	0.18	1.0	ug/l		8260B	10/28/11	1
Styrene	U	0.30	1.0	ug/l		8260B	10/28/11	1
1,1,1,2-Tetrachloroethane	U	0.31	1.0	ug/l		8260B	10/28/11	1
1,1,2,2-Tetrachloroethane	U	0.29	1.0	ug/l		8260B	10/28/11	1
1,1,2-Trichlorotrifluoroethane	U	0.38	1.0	ug/l		8260B	10/28/11	1
Tetrachloroethene	U	0.24	1.0	ug/l	J4	8260B	10/28/11	1
Toluene	U	0.16	5.0	ug/l		8260B	10/28/11	1
1,2,3-Trichlorobenzene	U	0.30	1.0	ug/l		8260B	10/28/11	1
1,2,4-Trichlorobenzene	U	0.21	1.0	ug/l		8260B	10/28/11	1
1,1,1-Trichloroethane	U	0.24	1.0	ug/l		8260B	10/28/11	1
1,1,2-Trichloroethane	U	0.38	1.0	ug/l		8260B	10/28/11	1
Trichloroethene	U	0.29	1.0	ug/l		8260B	10/28/11	1
Trichlorofluoromethane	U	0.49	5.0	ug/l		8260B	10/28/11	1
1,2,3-Trichloropropane	U	0.52	2.5	ug/l		8260B	10/28/11	1
1,2,4-Trimethylbenzene	U	0.20	1.0	ug/l		8260B	10/28/11	1
1,2,3-Trimethylbenzene	U	0.17	1.0	ug/l		8260B	10/28/11	1
1,3,5-Trimethylbenzene	U	0.18	1.0	ug/l		8260B	10/28/11	1
Vinyl chloride	U	0.28	1.0	ug/l		8260B	10/28/11	1
Xylenes, Total	U	0.86	3.0	ug/l		8260B	10/28/11	1
Surrogate Recovery								
Toluene-d8	106.			% Rec.		8260B	10/28/11	1
Dibromofluoromethane	106.			% Rec.		8260B	10/28/11	1
4-Bromofluorobenzene	109.			% Rec.		8260B	10/28/11	1

U = ND (Not Detected)
 RDL = Reported Detection Limit = LOQ = PQL = EQL
 MDL = Minimum Detection Limit = LOD = SQL(TRRP)

Note:

The reported analytical results relate only to the sample submitted.
 This report shall not be reproduced, except in full, without the written approval from ESC.

Reported: 11/03/11 11:35 Printed: 11/03/11 11:44

Attachment A
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L543787-01	WG562802	SAMP	Acrolein	R1917014	J4
	WG562802	SAMP	Tetrachloroethene	R1917014	J4
L543787-02	WG562803	SAMP	Carbon disulfide	R1917132	J3
	WG562803	SAMP	2-Chloroethyl vinyl ether	R1917132	J3
	WG562803	SAMP	4-Methyl-2-pentanone (MIBK)	R1917132	J3
	WG562803	SAMP	Methyl tert-butyl ether	R1917132	J3
	WG562803	SAMP	Tetrachloroethene	R1917132	J
	WG562803	SAMP	1,2,3-Trichloropropane	R1917132	J3
L543787-03	WG562803	SAMP	Carbon disulfide	R1917132	J3
	WG562803	SAMP	2-Chloroethyl vinyl ether	R1917132	J3
	WG562803	SAMP	4-Methyl-2-pentanone (MIBK)	R1917132	J3
	WG562803	SAMP	Methyl tert-butyl ether	R1917132	J3
	WG562803	SAMP	1,2,3-Trichloropropane	R1917132	J3
L543787-04	WG562803	SAMP	Acetone	R1917132	J3
	WG562803	SAMP	Acrylonitrile	R1917132	J3
	WG562803	SAMP	Benzene	R1917132	J3
	WG562803	SAMP	Bromobenzene	R1917132	J3
	WG562803	SAMP	Bromodichloromethane	R1917132	J3
	WG562803	SAMP	Bromoform	R1917132	J3
	WG562803	SAMP	n-Butylbenzene	R1917132	J3
	WG562803	SAMP	sec-Butylbenzene	R1917132	J3
	WG562803	SAMP	tert-Butylbenzene	R1917132	J3
	WG562803	SAMP	Carbon tetrachloride	R1917132	J3
	WG562803	SAMP	Chlorobenzene	R1917132	J3
	WG562803	SAMP	Chlorodibromomethane	R1917132	J3
	WG562803	SAMP	Chloroform	R1917132	J3
	WG562803	SAMP	2-Chlorotoluene	R1917132	J3
	WG562803	SAMP	4-Chlorotoluene	R1917132	J3
	WG562803	SAMP	1,2-Dibromo-3-Chloropropane	R1917132	J3
	WG562803	SAMP	1,2-Dibromoethane	R1917132	J3
	WG562803	SAMP	Dibromomethane	R1917132	J3
	WG562803	SAMP	1,2-Dichlorobenzene	R1917132	J3
	WG562803	SAMP	1,3-Dichlorobenzene	R1917132	J3
	WG562803	SAMP	1,4-Dichlorobenzene	R1917132	J3
	WG562803	SAMP	Dichlorodifluoromethane	R1917132	J3
	WG562803	SAMP	1,1-Dichloroethane	R1917132	J3
	WG562803	SAMP	1,2-Dichloroethane	R1917132	J3
	WG562803	SAMP	cis-1,2-Dichloroethene	R1917132	J3
	WG562803	SAMP	trans-1,2-Dichloroethene	R1917132	J3
	WG562803	SAMP	1,2-Dichloropropane	R1917132	J3
	WG562803	SAMP	1,1-Dichloropropene	R1917132	J3
	WG562803	SAMP	1,3-Dichloropropane	R1917132	J3
	WG562803	SAMP	cis-1,3-Dichloropropene	R1917132	J3
	WG562803	SAMP	trans-1,3-Dichloropropene	R1917132	J3
	WG562803	SAMP	Di-isopropyl ether	R1917132	J3
	WG562803	SAMP	Hexachloro-1,3-butadiene	R1917132	J3
	WG562803	SAMP	Isopropylbenzene	R1917132	J3
	WG562803	SAMP	p-Isopropyltoluene	R1917132	J3
	WG562803	SAMP	2-Butanone (MEK)	R1917132	J3
	WG562803	SAMP	Naphthalene	R1917132	J3
	WG562803	SAMP	n-Propylbenzene	R1917132	J3
	WG562803	SAMP	Styrene	R1917132	J3
	WG562803	SAMP	1,1,1,2-Tetrachloroethane	R1917132	J3
	WG562803	SAMP	1,1,2,2-Tetrachloroethane	R1917132	J3
	WG562803	SAMP	1,1,2-Trichlorotrifluoroethane	R1917132	J3
	WG562803	SAMP	Tetrachloroethene	R1917132	JJ3
	WG562803	SAMP	Toluene	R1917132	J3
	WG562803	SAMP	1,2,3-Trichlorobenzene	R1917132	J3
	WG562803	SAMP	1,2,4-Trichlorobenzene	R1917132	J3
	WG562803	SAMP	1,1,1-Trichloroethane	R1917132	J3
	WG562803	SAMP	1,1,2-Trichloroethane	R1917132	J3
	WG562803	SAMP	Trichloroethene	R1917132	J3
	WG562803	SAMP	1,2,4-Trimethylbenzene	R1917132	J3
	WG562803	SAMP	1,2,3-Trimethylbenzene	R1917132	J3
	WG562803	SAMP	1,3,5-Trimethylbenzene	R1917132	J3
	WG562803	SAMP	Xylenes, Total	R1917132	J3
L543787-05	WG562803	SAMP	Carbon disulfide	R1917132	J3
	WG562803	SAMP	2-Chloroethyl vinyl ether	R1917132	J3
	WG562803	SAMP	Methylene Chloride	R1917132	J

Attachment A
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L543787-06	WG562803	SAMP	4-Methyl-2-pentanone (MIBK)	R1917132	J3
	WG562803	SAMP	Methyl tert-butyl ether	R1917132	J3
	WG562803	SAMP	1,2,3-Trichloropropane	R1917132	J3
	WG562802	SAMP	Acetone	R1917014	J
	WG562802	SAMP	Acrolein	R1917014	J4
	WG562802	SAMP	Benzene	R1917014	J
	WG562802	SAMP	2-Butanone (MEK)	R1917014	J
L543787-07	WG562802	SAMP	Tetrachloroethene	R1917014	J4
	WG562802	SAMP	Toluene	R1917014	J
	WG562802	SAMP	Acrolein	R1917014	J4
L543787-08	WG562802	SAMP	Tetrachloroethene	R1917014	J4
	WG562802	SAMP	Acrolein	R1917014	J4
L543787-09	WG562802	SAMP	Tetrachloroethene	R1917014	J4
	WG562802	SAMP	Acetone	R1917014	J
	WG562802	SAMP	Acrolein	R1917014	J4
L543787-10	WG562802	SAMP	Tetrachloroethene	R1917014	J4
	WG562802	SAMP	Toluene	R1917014	J
	WG562802	SAMP	Acrolein	R1917014	J4
	WG562802	SAMP	Chloroform	R1917014	J
	WG562802	SAMP	Tetrachloroethene	R1917014	J4

Attachment B
Explanation of QC Qualifier Codes

Qualifier	Meaning
J	(EPA) - Estimated value below the lowest calibration point. Confidence correlates with concentration.
J3	The associated batch QC was outside the established quality control range for precision.
J4	The associated batch QC was outside the established quality control range for accuracy.

Qualifier Report Information

ESC utilizes sample and result qualifiers as set forth by the EPA Contract Laboratory Program and as required by most certifying bodies including NELAC. In addition to the EPA qualifiers adopted by ESC, we have implemented ESC qualifiers to provide more information pertaining to our analytical results. Each qualifier is designated in the qualifier explanation as either EPA or ESC. Data qualifiers are intended to provide the ESC client with more detailed information concerning the potential bias of reported data. Because of the wide range of constituents and variety of matrices incorporated by most EPA methods, it is common for some compounds to fall outside of established ranges. These exceptions are evaluated and all reported data is valid and useable "unless qualified as 'R' (Rejected)."

Definitions

Accuracy - The relationship of the observed value of a known sample to the true value of a known sample. Represented by percent recovery and relevant to samples such as: control samples, matrix spike recoveries, surrogate recoveries, etc.

Precision - The agreement between a set of samples or between duplicate samples. Relates to how close together the results are and is represented by Relative Percent Difference.

Surrogate - Organic compounds that are similar in chemical composition, extraction, and chromatography to analytes of interest. The surrogates are used to determine the probable response of the group of analytes that are chemically related to the surrogate compound. Surrogates are added to the sample and carried through all stages of preparation and analyses.

TIC - Tentatively Identified Compound: Compounds detected in samples that are not target compounds, internal standards, system monitoring compounds, or surrogates.



YOUR LAB OF CHOICE

Oregon Dept. of Env. Quality - ODEQ
Katie Robertson
700 SE Emigrant, Suite 330

Pendleton, OR 97801

Quality Assurance Report
Level II

L543787

12065 Lebanon Rd.
Mt. Juliet, TN 37122
(615) 758-5858
1-800-767-5859
Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

November 03, 2011

Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed
		Units	% Rec			
1,1,1,2-Tetrachloroethane	< .001	mg/l			WG562802	10/28/11 10:36
1,1,1-Trichloroethane	< .001	mg/l			WG562802	10/28/11 10:36
1,1,2,2-Tetrachloroethane	< .001	mg/l			WG562802	10/28/11 10:36
1,1,2-Trichloroethane	< .001	mg/l			WG562802	10/28/11 10:36
1,1,2-Trichlorotrifluoroethane	< .001	mg/l			WG562802	10/28/11 10:36
1,1-Dichloroethane	< .001	mg/l			WG562802	10/28/11 10:36
1,1-Dichloroethene	< .001	mg/l			WG562802	10/28/11 10:36
1,1-Dichloropropene	< .001	mg/l			WG562802	10/28/11 10:36
1,2,3-Trichlorobenzene	< .001	mg/l			WG562802	10/28/11 10:36
1,2,3-Trichloropropane	< .001	mg/l			WG562802	10/28/11 10:36
1,2,3-Trimethylbenzene	< .001	mg/l			WG562802	10/28/11 10:36
1,2,4-Trichlorobenzene	< .001	mg/l			WG562802	10/28/11 10:36
1,2,4-Trimethylbenzene	< .001	mg/l			WG562802	10/28/11 10:36
1,2-Dibromo-3-Chloropropane	< .005	mg/l			WG562802	10/28/11 10:36
1,2-Dibromoethane	< .001	mg/l			WG562802	10/28/11 10:36
1,2-Dichlorobenzene	< .001	mg/l			WG562802	10/28/11 10:36
1,2-Dichloroethane	< .001	mg/l			WG562802	10/28/11 10:36
1,2-Dichloropropane	< .001	mg/l			WG562802	10/28/11 10:36
1,3,5-Trimethylbenzene	< .001	mg/l			WG562802	10/28/11 10:36
1,3-Dichlorobenzene	< .001	mg/l			WG562802	10/28/11 10:36
1,3-Dichloropropane	< .001	mg/l			WG562802	10/28/11 10:36
1,4-Dichlorobenzene	< .001	mg/l			WG562802	10/28/11 10:36
2,2-Dichloropropane	< .001	mg/l			WG562802	10/28/11 10:36
2-Butanone (MEK)	< .01	mg/l			WG562802	10/28/11 10:36
2-Chloroethyl vinyl ether	< .05	mg/l			WG562802	10/28/11 10:36
2-Chlorotoluene	< .001	mg/l			WG562802	10/28/11 10:36
4-Chlorotoluene	< .001	mg/l			WG562802	10/28/11 10:36
4-Methyl-2-pentanone (MIBK)	< .01	mg/l			WG562802	10/28/11 10:36
Acetone	< .05	mg/l			WG562802	10/28/11 10:36
Acrolein	< .025	mg/l			WG562802	10/28/11 10:36
Acrylonitrile	< .01	mg/l			WG562802	10/28/11 10:36
Benzene	< .001	mg/l			WG562802	10/28/11 10:36
Bromobenzene	< .001	mg/l			WG562802	10/28/11 10:36
Bromodichloromethane	< .001	mg/l			WG562802	10/28/11 10:36
Bromoform	< .001	mg/l			WG562802	10/28/11 10:36
Bromomethane	< .005	mg/l			WG562802	10/28/11 10:36
Carbon disulfide	< .001	mg/l			WG562802	10/28/11 10:36
Carbon tetrachloride	< .001	mg/l			WG562802	10/28/11 10:36
Chlorobenzene	< .001	mg/l			WG562802	10/28/11 10:36
Chlorodibromomethane	< .001	mg/l			WG562802	10/28/11 10:36
Chloroethane	< .005	mg/l			WG562802	10/28/11 10:36
Chloroform	< .005	mg/l			WG562802	10/28/11 10:36
Chloromethane	< .0025	mg/l			WG562802	10/28/11 10:36
cis-1,2-Dichloroethene	< .001	mg/l			WG562802	10/28/11 10:36
cis-1,3-Dichloropropene	< .001	mg/l			WG562802	10/28/11 10:36
Di-isopropyl ether	< .001	mg/l			WG562802	10/28/11 10:36
Dibromomethane	< .001	mg/l			WG562802	10/28/11 10:36
Dichlorodifluoromethane	< .005	mg/l			WG562802	10/28/11 10:36
Ethylbenzene	< .001	mg/l			WG562802	10/28/11 10:36
Hexachloro-1,3-butadiene	< .001	mg/l			WG562802	10/28/11 10:36
Isopropylbenzene	< .001	mg/l			WG562802	10/28/11 10:36
Methyl tert-butyl ether	< .001	mg/l			WG562802	10/28/11 10:36
Methylene Chloride	< .005	mg/l			WG562802	10/28/11 10:36
n-Butylbenzene	< .001	mg/l			WG562802	10/28/11 10:36
n-Propylbenzene	< .001	mg/l			WG562802	10/28/11 10:36
Naphthalene	< .005	mg/l			WG562802	10/28/11 10:36
p-Isopropyltoluene	< .001	mg/l			WG562802	10/28/11 10:36
sec-Butylbenzene	< .001	mg/l			WG562802	10/28/11 10:36
Styrene	< .001	mg/l			WG562802	10/28/11 10:36

* Performance of this Analyte is outside of established criteria.
For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'



YOUR LAB OF CHOICE

Oregon Dept. of Env. Quality - ODEQ
Katie Robertson
700 SE Emigrant, Suite 330

Quality Assurance Report
Level II

Pendleton, OR 97801

L543787

12065 Lebanon Rd.
Mt. Juliet, TN 37122
(615) 758-5858
1-800-767-5859
Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

November 03, 2011

Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed
		Units	% Rec			
tert-Butylbenzene	< .001	mg/l			WG562802	10/28/11 10:36
Tetrachloroethene	< .001	mg/l			WG562802	10/28/11 10:36
Toluene	< .005	mg/l			WG562802	10/28/11 10:36
trans-1,2-Dichloroethene	< .001	mg/l			WG562802	10/28/11 10:36
trans-1,3-Dichloropropene	< .001	mg/l			WG562802	10/28/11 10:36
Trichloroethene	< .001	mg/l			WG562802	10/28/11 10:36
Trichlorofluoromethane	< .005	mg/l			WG562802	10/28/11 10:36
Vinyl chloride	< .001	mg/l			WG562802	10/28/11 10:36
Xylenes, Total	< .003	mg/l			WG562802	10/28/11 10:36
4-Bromofluorobenzene		% Rec.	105.9	82-120	WG562802	10/28/11 10:36
Dibromofluoromethane		% Rec.	98.99	82-126	WG562802	10/28/11 10:36
Toluene-d8		% Rec.	104.5	92-112	WG562802	10/28/11 10:36
1,1,1,2-Tetrachloroethane	< .001	mg/kg			WG562803	10/27/11 16:32
1,1,1-Trichloroethane	< .001	mg/kg			WG562803	10/27/11 16:32
1,1,2,2-Tetrachloroethane	< .001	mg/kg			WG562803	10/27/11 16:32
1,1,2-Trichloroethane	< .001	mg/kg			WG562803	10/27/11 16:32
1,1,2-Trichlorotrifluoroethane	< .001	mg/kg			WG562803	10/27/11 16:32
1,1-Dichloroethane	< .001	mg/kg			WG562803	10/27/11 16:32
1,1-Dichloroethene	< .001	mg/kg			WG562803	10/27/11 16:32
1,1-Dichloropropene	< .001	mg/kg			WG562803	10/27/11 16:32
1,2,3-Trichlorobenzene	< .001	mg/kg			WG562803	10/27/11 16:32
1,2,3-Trichloropropane	< .0025	mg/kg			WG562803	10/27/11 16:32
1,2,3-Trimethylbenzene	< .001	mg/kg			WG562803	10/27/11 16:32
1,2,4-Trichlorobenzene	< .001	mg/kg			WG562803	10/27/11 16:32
1,2,4-Trimethylbenzene	< .001	mg/kg			WG562803	10/27/11 16:32
1,2-Dibromo-3-Chloropropane	< .005	mg/kg			WG562803	10/27/11 16:32
1,2-Dibromoethane	< .001	mg/kg			WG562803	10/27/11 16:32
1,2-Dichlorobenzene	< .001	mg/kg			WG562803	10/27/11 16:32
1,2-Dichloroethane	< .001	mg/kg			WG562803	10/27/11 16:32
1,2-Dichloropropane	< .001	mg/kg			WG562803	10/27/11 16:32
1,3,5-Trimethylbenzene	< .001	mg/kg			WG562803	10/27/11 16:32
1,3-Dichlorobenzene	< .001	mg/kg			WG562803	10/27/11 16:32
1,3-Dichloropropane	< .001	mg/kg			WG562803	10/27/11 16:32
1,4-Dichlorobenzene	< .001	mg/kg			WG562803	10/27/11 16:32
2,2-Dichloropropane	< .001	mg/kg			WG562803	10/27/11 16:32
2-Butanone (MEK)	< .01	mg/kg			WG562803	10/27/11 16:32
2-Chloroethyl vinyl ether	< .05	mg/kg			WG562803	10/27/11 16:32
2-Chlorotoluene	< .001	mg/kg			WG562803	10/27/11 16:32
4-Chlorotoluene	< .001	mg/kg			WG562803	10/27/11 16:32
4-Methyl-2-pentanone (MIBK)	< .01	mg/kg			WG562803	10/27/11 16:32
Acetone	< .05	mg/kg			WG562803	10/27/11 16:32
Acrylonitrile	< .01	mg/kg			WG562803	10/27/11 16:32
Benzene	< .001	mg/kg			WG562803	10/27/11 16:32
Bromobenzene	< .001	mg/kg			WG562803	10/27/11 16:32
Bromodichloromethane	< .001	mg/kg			WG562803	10/27/11 16:32
Bromoform	< .001	mg/kg			WG562803	10/27/11 16:32
Bromomethane	< .005	mg/kg			WG562803	10/27/11 16:32
Carbon disulfide	< .001	mg/kg			WG562803	10/27/11 16:32
Carbon tetrachloride	< .001	mg/kg			WG562803	10/27/11 16:32
Chlorobenzene	< .001	mg/kg			WG562803	10/27/11 16:32
Chlorodibromomethane	< .001	mg/kg			WG562803	10/27/11 16:32
Chloroethane	< .005	mg/kg			WG562803	10/27/11 16:32
Chloroform	< .005	mg/kg			WG562803	10/27/11 16:32
Chloromethane	< .0025	mg/kg			WG562803	10/27/11 16:32
cis-1,2-Dichloroethene	< .001	mg/kg			WG562803	10/27/11 16:32
cis-1,3-Dichloropropene	< .001	mg/kg			WG562803	10/27/11 16:32
Di-isopropyl ether	< .001	mg/kg			WG562803	10/27/11 16:32

* Performance of this Analyte is outside of established criteria.

For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'



YOUR LAB OF CHOICE

Oregon Dept. of Env. Quality - ODEQ
 Katie Robertson
 700 SE Emigrant, Suite 330
 Pendleton, OR 97801

Quality Assurance Report
 Level II

L543787

12065 Lebanon Rd.
 Mt. Juliet, TN 37122
 (615) 758-5858
 1-800-767-5859
 Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

November 03, 2011

Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed
		Units	% Rec			
Dibromomethane	< .001	mg/kg			WG562803	10/27/11 16:32
Dichlorodifluoromethane	< .005	mg/kg			WG562803	10/27/11 16:32
Ethylbenzene	< .001	mg/kg			WG562803	10/27/11 16:32
Hexachloro-1,3-butadiene	< .001	mg/kg			WG562803	10/27/11 16:32
Isopropylbenzene	< .001	mg/kg			WG562803	10/27/11 16:32
Methyl tert-butyl ether	< .001	mg/kg			WG562803	10/27/11 16:32
Methylene Chloride	< .005	mg/kg			WG562803	10/27/11 16:32
n-Butylbenzene	< .001	mg/kg			WG562803	10/27/11 16:32
n-Propylbenzene	< .001	mg/kg			WG562803	10/27/11 16:32
Naphthalene	< .005	mg/kg			WG562803	10/27/11 16:32
p-Isopropyltoluene	< .001	mg/kg			WG562803	10/27/11 16:32
sec-Butylbenzene	< .001	mg/kg			WG562803	10/27/11 16:32
Styrene	< .001	mg/kg			WG562803	10/27/11 16:32
tert-Butylbenzene	< .001	mg/kg			WG562803	10/27/11 16:32
Tetrachloroethene	< .001	mg/kg			WG562803	10/27/11 16:32
Toluene	< .005	mg/kg			WG562803	10/27/11 16:32
trans-1,2-Dichloroethene	< .001	mg/kg			WG562803	10/27/11 16:32
trans-1,3-Dichloropropene	< .001	mg/kg			WG562803	10/27/11 16:32
Trichloroethene	< .001	mg/kg			WG562803	10/27/11 16:32
Trichlorofluoromethane	< .005	mg/kg			WG562803	10/27/11 16:32
Vinyl chloride	< .001	mg/kg			WG562803	10/27/11 16:32
Xylenes, Total	< .003	mg/kg			WG562803	10/27/11 16:32
4-Bromofluorobenzene		% Rec.	103.6	67-133	WG562803	10/27/11 16:32
Dibromofluoromethane		% Rec.	95.39	72-135	WG562803	10/27/11 16:32
Toluene-d8		% Rec.	102.3	90-113	WG562803	10/27/11 16:32
a,a,a-Trifluorotoluene		% Rec.	107.0	89-115	WG562803	10/27/11 16:32
Total Solids	< .1	%			WG563248	11/02/11 09:54
Total Solids	< .1	%			WG563246	11/03/11 09:44

Analyte	Units	Duplicate		RPD	Limit	Ref Samp	Batch
		Result	Duplicate				
Total Solids	%	92.0	91.3	0.576	5	L543791-08	WG563248
Total Solids	%	85.0	84.2	1.36	5	L543787-03	WG563246

Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
1,1,1,2-Tetrachloroethane	mg/l	.025	0.0279	112.	77-128	WG562802
1,1,1-Trichloroethane	mg/l	.025	0.0269	108.	71-126	WG562802
1,1,2,2-Tetrachloroethane	mg/l	.025	0.0226	90.6	78-130	WG562802
1,1,2-Trichloroethane	mg/l	.025	0.0257	103.	81-121	WG562802
1,1,2-Trichlorotrifluoroethane	mg/l	.025	0.0322	129.	53-143	WG562802
1,1-Dichloroethane	mg/l	.025	0.0235	93.9	73-123	WG562802
1,1-Dichloroethene	mg/l	.025	0.0304	122.	54-134	WG562802
1,1-Dichloropropene	mg/l	.025	0.0247	98.7	67-127	WG562802
1,2,3-Trichlorobenzene	mg/l	.025	0.0252	101.	77-130	WG562802
1,2,3-Trichloropropane	mg/l	.025	0.0246	98.2	68-130	WG562802
1,2,3-Trimethylbenzene	mg/l	.025	0.0227	90.6	70-127	WG562802
1,2,4-Trichlorobenzene	mg/l	.025	0.0275	110.	76-127	WG562802
1,2,4-Trimethylbenzene	mg/l	.025	0.0265	106.	77-129	WG562802
1,2-Dibromo-3-Chloropropane	mg/l	.025	0.0234	93.5	55-142	WG562802
1,2-Dibromoethane	mg/l	.025	0.0265	106.	78-124	WG562802

* Performance of this Analyte is outside of established criteria.
 For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'



YOUR LAB OF CHOICE

Oregon Dept. of Env. Quality - ODEQ
Katie Robertson
700 SE Emigrant, Suite 330

Pendleton, OR 97801

Quality Assurance Report
Level II

L543787

12065 Lebanon Rd.
Mt. Juliet, TN 37122
(615) 758-5858
1-800-767-5859
Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

November 03, 2011

Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
1,2-Dichlorobenzene	mg/l	.025	0.0246	98.5	82-121	WG562802
1,2-Dichloroethane	mg/l	.025	0.0249	99.6	69-128	WG562802
1,2-Dichloropropane	mg/l	.025	0.0216	86.5	77-121	WG562802
1,3,5-Trimethylbenzene	mg/l	.025	0.0275	110.	78-127	WG562802
1,3-Dichlorobenzene	mg/l	.025	0.0292	117.	77-127	WG562802
1,3-Dichloropropane	mg/l	.025	0.0254	102.	78-117	WG562802
1,4-Dichlorobenzene	mg/l	.025	0.0250	100.	79-117	WG562802
2,2-Dichloropropane	mg/l	.025	0.0258	103.	63-130	WG562802
2-Butanone (MEK)	mg/l	.125	0.0955	76.4	58-144	WG562802
2-Chloroethyl vinyl ether	mg/l	.125	0.101	80.7	26-172	WG562802
2-Chlorotoluene	mg/l	.025	0.0262	105.	78-123	WG562802
4-Chlorotoluene	mg/l	.025	0.0263	105.	78-122	WG562802
4-Methyl-2-pentanone (MIBK)	mg/l	.125	0.115	92.4	58-147	WG562802
Acetone	mg/l	.125	0.102	81.2	49-153	WG562802
Acrolein	mg/l	.125	0.0122	9.73*	10-181	WG562802
Acrylonitrile	mg/l	.125	0.0963	77.1	53-153	WG562802
Benzene	mg/l	.025	0.0221	88.4	72-119	WG562802
Bromobenzene	mg/l	.025	0.0254	102.	76-121	WG562802
Bromodichloromethane	mg/l	.025	0.0246	98.4	75-127	WG562802
Bromoform	mg/l	.025	0.0305	122.	61-136	WG562802
Bromomethane	mg/l	.025	0.0274	110.	42-172	WG562802
Carbon disulfide	mg/l	.025	0.0280	112.	19-150	WG562802
Carbon tetrachloride	mg/l	.025	0.0286	114.	63-129	WG562802
Chlorobenzene	mg/l	.025	0.0261	105.	78-123	WG562802
Chlorodibromomethane	mg/l	.025	0.0288	115.	73-128	WG562802
Chloroethane	mg/l	.025	0.0246	98.2	52-164	WG562802
Chloroform	mg/l	.025	0.0240	96.1	76-122	WG562802
Chloromethane	mg/l	.025	0.0241	96.5	50-141	WG562802
cis-1,2-Dichloroethene	mg/l	.025	0.0238	95.4	75-121	WG562802
cis-1,3-Dichloropropene	mg/l	.025	0.0229	91.6	74-124	WG562802
Di-isopropyl ether	mg/l	.025	0.0185	74.1	66-129	WG562802
Dibromomethane	mg/l	.025	0.0255	102.	77-124	WG562802
Dichlorodifluoromethane	mg/l	.025	0.0379	152.	33-173	WG562802
Ethylbenzene	mg/l	.025	0.0261	104.	77-124	WG562802
Hexachloro-1,3-butadiene	mg/l	.025	0.0280	112.	71-134	WG562802
Isopropylbenzene	mg/l	.025	0.0306	122.	74-126	WG562802
Methyl tert-butyl ether	mg/l	.025	0.0241	96.5	67-127	WG562802
Methylene Chloride	mg/l	.025	0.0200	80.1	67-122	WG562802
n-Butylbenzene	mg/l	.025	0.0243	97.3	74-130	WG562802
n-Propylbenzene	mg/l	.025	0.0272	109.	77-125	WG562802
Naphthalene	mg/l	.025	0.0222	88.6	70-134	WG562802
p-Isopropyltoluene	mg/l	.025	0.0289	116.	77-132	WG562802
sec-Butylbenzene	mg/l	.025	0.0278	111.	77-130	WG562802
Styrene	mg/l	.025	0.0181	72.4	69-145	WG562802
tert-Butylbenzene	mg/l	.025	0.0294	117.	76-131	WG562802
Tetrachloroethene	mg/l	.025	0.0328	131.*	75-121	WG562802
Toluene	mg/l	.025	0.0240	95.8	75-114	WG562802
trans-1,2-Dichloroethene	mg/l	.025	0.0241	96.3	63-127	WG562802
trans-1,3-Dichloropropene	mg/l	.025	0.0223	89.1	69-124	WG562802
Trichloroethene	mg/l	.025	0.0290	116.	69-131	WG562802
Trichlorofluoromethane	mg/l	.025	0.0315	126.	53-161	WG562802
Vinyl chloride	mg/l	.025	0.0259	104.	55-142	WG562802
Xylenes, Total	mg/l	.075	0.0787	105.	77-123	WG562802
4-Bromofluorobenzene				106.6	82-120	WG562802
Dibromofluoromethane				99.33	82-126	WG562802
Toluene-d8				104.5	92-112	WG562802
1,1,1,2-Tetrachloroethane	mg/kg	.025	0.0281	112.	77-129	WG562803

* Performance of this Analyte is outside of established criteria.

For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'



YOUR LAB OF CHOICE

Oregon Dept. of Env. Quality - ODEQ
Katie Robertson
700 SE Emigrant, Suite 330

Pendleton, OR 97801

Quality Assurance Report
Level II

L543787

12065 Lebanon Rd.
Mt. Juliet, TN 37122
(615) 758-5858
1-800-767-5859
Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

November 03, 2011

Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
1,1,1-Trichloroethane	mg/kg	.025	0.0243	97.1	70-127	WG562803
1,1,2,2-Tetrachloroethane	mg/kg	.025	0.0265	106.	76-133	WG562803
1,1,2-Trichloroethane	mg/kg	.025	0.0292	117.	79-123	WG562803
1,1,2-Trichlorotrifluoroethane	mg/kg	.025	0.0261	104.	52-145	WG562803
1,1-Dichloroethane	mg/kg	.025	0.0237	94.7	74-121	WG562803
1,1-Dichloroethene	mg/kg	.025	0.0244	97.5	53-135	WG562803
1,1-Dichloropropene	mg/kg	.025	0.0227	90.8	67-127	WG562803
1,2,3-Trichlorobenzene	mg/kg	.025	0.0278	111.	74-131	WG562803
1,2,3-Trichloropropane	mg/kg	.025	0.0281	113.	75-135	WG562803
1,2,3-Trimethylbenzene	mg/kg	.025	0.0251	100.	76-128	WG562803
1,2,4-Trichlorobenzene	mg/kg	.025	0.0299	120.	72-130	WG562803
1,2,4-Trimethylbenzene	mg/kg	.025	0.0266	106.	75-131	WG562803
1,2-Dibromo-3-Chloropropane	mg/kg	.025	0.0251	100.	55-142	WG562803
1,2-Dibromoethane	mg/kg	.025	0.0295	118.	77-126	WG562803
1,2-Dichlorobenzene	mg/kg	.025	0.0284	114.	80-123	WG562803
1,2-Dichloroethane	mg/kg	.025	0.0231	92.5	70-128	WG562803
1,2-Dichloropropene	mg/kg	.025	0.0255	102.	74-125	WG562803
1,3,5-Trimethylbenzene	mg/kg	.025	0.0267	107.	77-129	WG562803
1,3-Dichlorobenzene	mg/kg	.025	0.0289	116.	76-128	WG562803
1,3-Dichloropropene	mg/kg	.025	0.0274	110.	77-118	WG562803
1,4-Dichlorobenzene	mg/kg	.025	0.0269	108.	77-119	WG562803
2,2-Dichloropropene	mg/kg	.025	0.0246	98.4	60-132	WG562803
2-Butanone (MEK)	mg/kg	.125	0.104	83.5	56-146	WG562803
2-Chloroethyl vinyl ether	mg/kg	.125	0.133	106.	17-179	WG562803
2-Chlorotoluene	mg/kg	.025	0.0261	104.	76-125	WG562803
4-Chlorotoluene	mg/kg	.025	0.0266	107.	76-125	WG562803
4-Methyl-2-pentanone (MIBK)	mg/kg	.125	0.118	94.4	55-148	WG562803
Acetone	mg/kg	.125	0.101	81.0	47-155	WG562803
Acrylonitrile	mg/kg	.125	0.119	94.9	50-155	WG562803
Benzene	mg/kg	.025	0.0246	98.6	72-120	WG562803
Bromobenzene	mg/kg	.025	0.0293	117.	74-122	WG562803
Bromodichloromethane	mg/kg	.025	0.0239	95.6	74-128	WG562803
Bromoform	mg/kg	.025	0.0240	95.9	62-137	WG562803
Bromomethane	mg/kg	.025	0.0274	110.	38-180	WG562803
Carbon disulfide	mg/kg	.025	0.0279	112.	18-152	WG562803
Carbon tetrachloride	mg/kg	.025	0.0222	88.8	62-130	WG562803
Chlorobenzene	mg/kg	.025	0.0285	114.	77-124	WG562803
Chlorodibromomethane	mg/kg	.025	0.0234	93.5	74-128	WG562803
Chloroethane	mg/kg	.025	0.0260	104.	46-173	WG562803
Chloroform	mg/kg	.025	0.0242	96.8	76-122	WG562803
Chloromethane	mg/kg	.025	0.0221	88.2	49-143	WG562803
cis-1,2-Dichloroethene	mg/kg	.025	0.0257	103.	73-123	WG562803
cis-1,3-Dichloropropene	mg/kg	.025	0.0251	100.	73-126	WG562803
Di-isopropyl ether	mg/kg	.025	0.0220	88.1	64-131	WG562803
Dibromomethane	mg/kg	.025	0.0266	107.	75-127	WG562803
Dichlorodifluoromethane	mg/kg	.025	0.0212	84.7	30-177	WG562803
Ethylbenzene	mg/kg	.025	0.0282	113.	76-126	WG562803
Hexachloro-1,3-butadiene	mg/kg	.025	0.0279	111.	71-134	WG562803
Isopropylbenzene	mg/kg	.025	0.0292	117.	70-128	WG562803
Methyl tert-butyl ether	mg/kg	.025	0.0257	103.	66-127	WG562803
Methylene Chloride	mg/kg	.025	0.0249	99.6	67-124	WG562803
n-Butylbenzene	mg/kg	.025	0.0267	107.	71-133	WG562803
n-Propylbenzene	mg/kg	.025	0.0270	108.	76-126	WG562803
Naphthalene	mg/kg	.025	0.0266	106.	68-136	WG562803
p-Isopropyltoluene	mg/kg	.025	0.0276	110.	75-134	WG562803
sec-Butylbenzene	mg/kg	.025	0.0267	107.	75-132	WG562803
Styrene	mg/kg	.025	0.0210	84.0	68-148	WG562803
tert-Butylbenzene	mg/kg	.025	0.0271	108.	75-132	WG562803
Tetrachloroethene	mg/kg	.025	0.0302	121.	70-131	WG562803

* Performance of this Analyte is outside of established criteria.

For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'



YOUR LAB OF CHOICE

Oregon Dept. of Env. Quality - ODEQ
Katie Robertson
700 SE Emigrant, Suite 330

Pendleton, OR 97801

Quality Assurance Report
Level II

L543787

12065 Lebanon Rd.
Mt. Juliet, TN 37122
(615) 758-5858
1-800-767-5859
Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

November 03, 2011

Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
Toluene	mg/kg	.025	0.0261	104.	74-155	WG562803
trans-1,2-Dichloroethene	mg/kg	.025	0.0256	102.	63-126	WG562803
trans-1,3-Dichloropropene	mg/kg	.025	0.0222	88.9	68-126	WG562803
Trichloroethene	mg/kg	.025	0.0272	109.	75-121	WG562803
Trichlorofluoromethane	mg/kg	.025	0.0232	92.9	48-170	WG562803
Vinyl chloride	mg/kg	.025	0.0224	89.8	54-144	WG562803
Xylenes, Total	mg/kg	.075	0.0843	112.	76-126	WG562803
4-Bromofluorobenzene				96.06	67-133	WG562803
Dibromofluoromethane				92.94	72-135	WG562803
Toluene-d8				102.0	90-113	WG562803
a,a,a-Trifluorotoluene				106.8	89-115	WG562803

Total Solids	%	50	50.0	100.	85-155	WG563248
Total Solids	%	50	50.0	100.	85-155	WG563246

Analyte	Units	Laboratory Control Sample Duplicate		%Rec	Limit	RPD	Limit	Batch
		Result	Ref					
1,1,1,2-Tetrachloroethane	mg/l	0.0273	0.0279	109.	77-128	2.19	20	WG562802
1,1,1-Trichloroethane	mg/l	0.0255	0.0269	102.	71-126	5.52	20	WG562802
1,1,2,2-Tetrachloroethane	mg/l	0.0223	0.0226	89.0	78-130	1.41	20	WG562802
1,1,2-Trichloroethane	mg/l	0.0254	0.0257	102.	81-121	1.10	20	WG562802
1,1,2-Trichlorotrifluoroethane	mg/l	0.0308	0.0322	123.	53-143	4.33	20	WG562802
1,1-Dichloroethane	mg/l	0.0229	0.0235	92.0	73-123	2.61	20	WG562802
1,1-Dichloroethene	mg/l	0.0283	0.0304	113.	54-134	7.26	20	WG562802
1,1-Dichloropropene	mg/l	0.0239	0.0247	96.0	67-127	3.04	20	WG562802
1,2,3-Trichlorobenzene	mg/l	0.0248	0.0252	99.0	77-130	1.77	20	WG562802
1,2,3-Trichloropropane	mg/l	0.0251	0.0246	100.	68-130	2.00	20	WG562802
1,2,3-Trimethylbenzene	mg/l	0.0219	0.0227	88.0	70-127	3.50	20	WG562802
1,2,4-Trichlorobenzene	mg/l	0.0267	0.0275	107.	76-127	3.09	20	WG562802
1,2,4-Trimethylbenzene	mg/l	0.0257	0.0265	103.	77-129	2.94	20	WG562802
1,2-Dibromo-3-Chloropropane	mg/l	0.0242	0.0234	97.0	55-142	3.34	20	WG562802
1,2-Dibromoethane	mg/l	0.0260	0.0265	104.	78-124	1.63	20	WG562802
1,2-Dichlorobenzene	mg/l	0.0238	0.0246	95.0	82-121	3.45	20	WG562802
1,2-Dichloroethane	mg/l	0.0248	0.0249	99.0	69-128	0.560	20	WG562802
1,2-Dichloropropane	mg/l	0.0211	0.0216	84.0	77-121	2.66	20	WG562802
1,3,5-Trimethylbenzene	mg/l	0.0273	0.0275	109.	78-127	0.700	20	WG562802
1,3-Dichlorobenzene	mg/l	0.0290	0.0292	116.	77-127	0.440	20	WG562802
1,3-Dichloropropane	mg/l	0.0254	0.0254	101.	78-117	0.260	20	WG562802
1,4-Dichlorobenzene	mg/l	0.0244	0.0250	98.0	79-117	2.45	20	WG562802
2,2-Dichloropropane	mg/l	0.0253	0.0258	101.	63-130	1.67	20	WG562802
2-Butanone (MEK)	mg/l	0.0949	0.0955	76.0	58-144	0.650	20	WG562802
2-Chloroethyl vinyl ether	mg/l	0.110	0.101	88.0	26-172	8.22	22	WG562802
2-Chlorotoluene	mg/l	0.0257	0.0262	103.	78-123	2.15	20	WG562802
4-Chlorotoluene	mg/l	0.0263	0.0263	105.	78-122	0.0200	20	WG562802
4-Methyl-2-pentanone (MIBK)	mg/l	0.119	0.115	96.0	58-147	3.35	20	WG562802
Acetone	mg/l	0.108	0.102	86.0	49-153	6.06	21	WG562802
Acrolein	mg/l	0.0124	0.0122	10.0	10-181	2.28	30	WG562802
Acrylonitrile	mg/l	0.0953	0.0963	76.0	53-153	1.11	20	WG562802
Benzene	mg/l	0.0217	0.0221	87.0	72-119	1.63	20	WG562802
Bromobenzene	mg/l	0.0247	0.0254	99.0	76-121	2.71	20	WG562802
Bromodichloromethane	mg/l	0.0242	0.0246	97.0	75-127	1.53	20	WG562802
Bromoform	mg/l	0.0303	0.0305	121.	61-136	0.630	20	WG562802
Bromomethane	mg/l	0.0273	0.0274	109.	42-172	0.300	20	WG562802
Carbon disulfide	mg/l	0.0261	0.0280	104.	19-150	7.07	20	WG562802
Carbon tetrachloride	mg/l	0.0266	0.0286	106.	63-129	7.21	20	WG562802

* Performance of this Analyte is outside of established criteria.

For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'



YOUR LAB OF CHOICE

Oregon Dept. of Env. Quality - ODEQ
Katie Robertson
700 SE Emigrant, Suite 330

Pendleton, OR 97801

Quality Assurance Report
Level II

L543787

12065 Lebanon Rd.
Mt. Juliet, TN 37122
(615) 758-5858
1-800-767-5859
Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

November 03, 2011

Analyte	Units	Laboratory Control		Sample Duplicate		Limit	RPD	Limit	Batch
		Result	Ref	%Rec					
Chlorobenzene	mg/l	0.0259	0.0261	104.		78-123	0.890	20	WG562802
Chlorodibromomethane	mg/l	0.0274	0.0288	109.		73-128	5.29	20	WG562802
Chloroethane	mg/l	0.0245	0.0246	98.0		52-164	0.150	20	WG562802
Chloroform	mg/l	0.0230	0.0240	92.0		76-122	4.22	20	WG562802
Chloromethane	mg/l	0.0232	0.0241	93.0		50-141	4.00	20	WG562802
cis-1,2-Dichloroethene	mg/l	0.0228	0.0238	91.0		75-121	4.64	20	WG562802
cis-1,3-Dichloropropene	mg/l	0.0237	0.0229	95.0		74-124	3.30	20	WG562802
Di-isopropyl ether	mg/l	0.0185	0.0185	74.0		66-129	0.290	20	WG562802
Dibromomethane	mg/l	0.0250	0.0255	100.		77-124	2.02	20	WG562802
Dichlorodifluoromethane	mg/l	0.0353	0.0379	141.		33-173	7.28	20	WG562802
Ethylbenzene	mg/l	0.0262	0.0261	105.		77-124	0.360	20	WG562802
Hexachloro-1,3-butadiene	mg/l	0.0271	0.0280	108.		71-134	3.47	20	WG562802
Isopropylbenzene	mg/l	0.0297	0.0306	119.		74-126	2.92	20	WG562802
Methyl tert-butyl ether	mg/l	0.0232	0.0241	93.0		67-127	3.76	20	WG562802
Methylene Chloride	mg/l	0.0215	0.0200	86.0		67-122	6.86	20	WG562802
n-Butylbenzene	mg/l	0.0233	0.0243	93.0		74-130	4.39	20	WG562802
n-Propylbenzene	mg/l	0.0263	0.0272	105.		77-125	3.14	20	WG562802
Naphthalene	mg/l	0.0229	0.0222	92.0		70-134	3.40	20	WG562802
p-Isopropyltoluene	mg/l	0.0284	0.0289	114.		77-132	1.58	20	WG562802
sec-Butylbenzene	mg/l	0.0275	0.0278	110.		77-130	1.00	20	WG562802
Styrene	mg/l	0.0187	0.0181	75.0		69-145	3.16	20	WG562802
tert-Butylbenzene	mg/l	0.0285	0.0294	114.		76-131	3.01	20	WG562802
Tetrachloroethene	mg/l	0.0310	0.0328	124*		75-121	5.93	20	WG562802
Toluene	mg/l	0.0237	0.0240	95.0		75-114	1.05	20	WG562802
trans-1,2-Dichloroethene	mg/l	0.0232	0.0241	93.0		63-127	3.83	20	WG562802
trans-1,3-Dichloropropene	mg/l	0.0235	0.0223	94.0		69-124	5.48	20	WG562802
Trichloroethene	mg/l	0.0280	0.0290	112.		69-131	3.31	20	WG562802
Trichlorofluoromethane	mg/l	0.0312	0.0315	125.		53-161	1.12	20	WG562802
Vinyl chloride	mg/l	0.0255	0.0259	102.		55-142	1.50	20	WG562802
Xylenes, Total	mg/l	0.0781	0.0787	104.		77-123	0.750	20	WG562802
4-Bromofluorobenzene				107.1		82-120			WG562802
Dibromofluoromethane				97.73		82-126			WG562802
Toluene-d8				104.5		92-112			WG562802
1,1,1,2-Tetrachloroethane	mg/kg	0.0260	0.0281	104.		77-129	7.62	20	WG562803
1,1,1-Trichloroethane	mg/kg	0.0230	0.0243	92.0		70-127	5.38	20	WG562803
1,1,2,2-Tetrachloroethane	mg/kg	0.0230	0.0265	92.0		76-133	14.0	20	WG562803
1,1,2-Trichloroethane	mg/kg	0.0262	0.0292	105.		79-123	10.7	20	WG562803
1,1,2-Trichlorotrifluoroethane	mg/kg	0.0253	0.0261	101.		52-145	3.07	20	WG562803
1,1-Dichloroethane	mg/kg	0.0225	0.0237	90.0		74-121	5.00	20	WG562803
1,1-Dichloroethene	mg/kg	0.0244	0.0244	97.0		53-135	0.0100	20	WG562803
1,1-Dichloropropene	mg/kg	0.0219	0.0227	88.0		67-127	3.31	20	WG562803
1,2,3-Trichlorobenzene	mg/kg	0.0280	0.0278	112.		74-131	0.630	20	WG562803
1,2,3-Trichloropropane	mg/kg	0.0230	0.0281	92.0		75-135	20.1*	20	WG562803
1,2,3-Trimethylbenzene	mg/kg	0.0228	0.0251	91.0		76-128	9.84	20	WG562803
1,2,4-Trichlorobenzene	mg/kg	0.0292	0.0299	117.		72-130	2.37	20	WG562803
1,2,4-Trimethylbenzene	mg/kg	0.0240	0.0266	96.0		75-131	10.2	20	WG562803
1,2-Dibromo-3-Chloropropane	mg/kg	0.0230	0.0251	92.0		55-142	8.90	20	WG562803
1,2-Dibromoethane	mg/kg	0.0264	0.0295	105.		77-126	11.1	20	WG562803
1,2-Dichlorobenzene	mg/kg	0.0259	0.0284	103.		80-123	9.48	20	WG562803
1,2-Dichloroethane	mg/kg	0.0210	0.0231	84.0		70-128	9.44	20	WG562803
1,2-Dichloropropane	mg/kg	0.0226	0.0255	90.0		74-125	12.3	20	WG562803
1,3,5-Trimethylbenzene	mg/kg	0.0247	0.0267	99.0		77-129	7.83	20	WG562803
1,3-Dichlorobenzene	mg/kg	0.0259	0.0289	104.		76-128	10.9	20	WG562803
1,3-Dichloropropane	mg/kg	0.0250	0.0274	100.		77-118	9.23	20	WG562803
1,4-Dichlorobenzene	mg/kg	0.0244	0.0269	98.0		77-119	9.85	20	WG562803
2,2-Dichloropropane	mg/kg	0.0216	0.0246	86.0		60-132	13.2	20	WG562803
2-Butanone (MEK)	mg/kg	0.0934	0.104	75.0		56-146	11.2	20	WG562803

* Performance of this Analyte is outside of established criteria.
For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'



YOUR LAB OF CHOICE

Oregon Dept. of Env. Quality - ODEQ
Katie Robertson
700 SE Emigrant, Suite 330

Pendleton, OR 97801

Quality Assurance Report
Level II

L543787

12065 Lebanon Rd.
Mt. Juliet, TN 37122
(615) 758-5858
1-800-767-5859
Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

November 03, 2011

Analyte	Units	Laboratory Control		Sample Duplicate		Limit	RPD	Limit	Batch
		Result	Ref	%Rec					
2-Chloroethyl vinyl ether	mg/kg	0.0767	0.133	61.0		17-179	53.6*	22	WG562803
2-Chlorotoluene	mg/kg	0.0233	0.0261	93.0		76-125	11.2	20	WG562803
4-Chlorotoluene	mg/kg	0.0238	0.0266	95.0		76-125	11.3	20	WG562803
4-Methyl-2-pentanone (MIBK)	mg/kg	0.0958	0.118	77.0		55-148	20.8*	20	WG562803
Acetone	mg/kg	0.101	0.101	80.0		47-155	0.490	22	WG562803
Acrylonitrile	mg/kg	0.103	0.119	82.0		50-155	14.0	20	WG562803
Benzene	mg/kg	0.0226	0.0246	90.0		72-120	8.60	20	WG562803
Bromobenzene	mg/kg	0.0264	0.0293	106.		74-122	10.3	20	WG562803
Bromodichloromethane	mg/kg	0.0211	0.0239	84.0		74-128	12.4	20	WG562803
Bromoform	mg/kg	0.0211	0.0240	84.0		62-137	12.7	20	WG562803
Bromomethane	mg/kg	0.0243	0.0274	97.0		38-180	11.9	20	WG562803
Carbon disulfide	mg/kg	0.0226	0.0279	90.0		18-152	21.0*	20	WG562803
Carbon tetrachloride	mg/kg	0.0213	0.0222	85.0		62-130	4.10	20	WG562803
Chlorobenzene	mg/kg	0.0260	0.0285	104.		77-124	8.93	20	WG562803
Chlorodibromomethane	mg/kg	0.0216	0.0234	86.0		74-128	7.81	20	WG562803
Chloroethane	mg/kg	0.0251	0.0260	100.		46-173	3.56	20	WG562803
Chloroform	mg/kg	0.0230	0.0242	92.0		76-122	4.99	20	WG562803
Chloromethane	mg/kg	0.0211	0.0221	84.0		49-143	4.63	20	WG562803
cis-1,2-Dichloroethene	mg/kg	0.0233	0.0257	93.0		73-123	9.60	20	WG562803
cis-1,3-Dichloropropene	mg/kg	0.0213	0.0251	85.0		73-126	16.1	20	WG562803
Di-isopropyl ether	mg/kg	0.0203	0.0220	81.0		64-131	8.15	20	WG562803
Dibromomethane	mg/kg	0.0230	0.0266	92.0		75-127	14.4	20	WG562803
Dichlorodifluoromethane	mg/kg	0.0221	0.0212	88.0		30-177	4.36	20	WG562803
Ethylbenzene	mg/kg	0.0248	0.0282	99.0		76-126	12.6	20	WG562803
Hexachloro-1,3-butadiene	mg/kg	0.0285	0.0279	114.		71-134	2.36	20	WG562803
Isopropylbenzene	mg/kg	0.0277	0.0292	111.		70-128	5.60	20	WG562803
Methyl tert-butyl ether	mg/kg	0.0207	0.0257	83.0		66-127	21.4*	20	WG562803
Methylene Chloride	mg/kg	0.0225	0.0249	90.0		67-124	10.1	20	WG562803
n-Butylbenzene	mg/kg	0.0260	0.0267	104.		71-133	2.51	20	WG562803
n-Propylbenzene	mg/kg	0.0243	0.0270	97.0		76-126	10.4	20	WG562803
Naphthalene	mg/kg	0.0252	0.0266	101.		68-136	5.24	20	WG562803
p-Isopropyltoluene	mg/kg	0.0261	0.0276	104.		75-134	5.61	20	WG562803
sec-Butylbenzene	mg/kg	0.0253	0.0267	101.		75-132	5.56	20	WG562803
Styrene	mg/kg	0.0181	0.0210	72.0		68-148	14.8	20	WG562803
tert-Butylbenzene	mg/kg	0.0261	0.0271	104.		75-132	3.81	20	WG562803
Tetrachloroethene	mg/kg	0.0286	0.0302	114.		70-131	5.38	20	WG562803
Toluene	mg/kg	0.0224	0.0261	90.0		74-155	15.0	20	WG562803
trans-1,2-Dichloroethene	mg/kg	0.0236	0.0256	94.0		63-126	8.11	20	WG562803
trans-1,3-Dichloropropene	mg/kg	0.0185	0.0222	74.0		68-126	18.4	20	WG562803
Trichloroethene	mg/kg	0.0250	0.0272	100.		75-121	8.68	20	WG562803
Trichlorofluoromethane	mg/kg	0.0231	0.0232	92.0		48-170	0.530	20	WG562803
Vinyl chloride	mg/kg	0.0227	0.0224	91.0		54-144	1.35	20	WG562803
Xylenes, Total	mg/kg	0.0747	0.0843	100.		76-126	12.0	20	WG562803
4-Bromofluorobenzene				97.55		67-133			WG562803
Dibromofluoromethane				99.30		72-135			WG562803
Toluene-d8				97.79		90-113			WG562803
a,a,a-Trifluorotoluene				102.5		89-115			WG562803

Analyte	Units	Matrix Spike			% Rec	Limit	Ref Samp	Batch
		MS Res	Ref Res	TV				
1,1,1,2-Tetrachloroethane	mg/l	0.0277	0	.025	111.	71-130	L543782-01	WG562802
1,1,1-Trichloroethane	mg/l	0.0243	0	.025	97.2	58-137	L543782-01	WG562802
1,1,2,2-Tetrachloroethane	mg/l	0.0235	0	.025	94.0	64-149	L543782-01	WG562802
1,1,2-Trichloroethane	mg/l	0.0258	0	.025	103.	73-128	L543782-01	WG562802
1,1,2-Trichlorotrifluoroethane	mg/l	0.0284	0	.025	113.	36-159	L543782-01	WG562802
1,1-Dichloroethane	mg/l	0.0224	0	.025	89.8	58-133	L543782-01	WG562802
1,1-Dichloroethene	mg/l	0.0288	0	.025	115.	32-152	L543782-01	WG562802
1,1-Dichloropropene	mg/l	0.0232	0	.025	92.8	50-140	L543782-01	WG562802

* Performance of this Analyte is outside of established criteria.
For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'



YOUR LAB OF CHOICE

Oregon Dept. of Env. Quality - ODEQ
Katie Robertson
700 SE Emigrant, Suite 330

Pendleton, OR 97801

Quality Assurance Report
Level II

L543787

12065 Lebanon Rd.
Mt. Juliet, TN 37122
(615) 758-5858
1-800-767-5859
Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

November 03, 2011

Analyte	Units	MS Res	Matrix Spike		% Rec	Limit	Ref Samp	Batch
			Ref Res	TV				
1,2,3-Trichlorobenzene	mg/l	0.0232	0	.025	92.7	68-135	L543782-01	WG562802
1,2,3-Trichloropropane	mg/l	0.0276	0	.025	110.	74-137	L543782-01	WG562802
1,2,3-Trimethylbenzene	mg/l	0.0215	0	.025	86.2	67-133	L543782-01	WG562802
1,2,4-Trichlorobenzene	mg/l	0.0244	0	.025	97.8	67-133	L543782-01	WG562802
1,2,4-Trimethylbenzene	mg/l	0.0251	0	.025	100.	62-141	L543782-01	WG562802
1,2-Dibromo-3-Chloropropane	mg/l	0.0259	0	.025	104.	55-148	L543782-01	WG562802
1,2-Dibromoethane	mg/l	0.0269	0	.025	108.	71-129	L543782-01	WG562802
1,2-Dichlorobenzene	mg/l	0.0238	0	.025	95.0	75-125	L543782-01	WG562802
1,2-Dichloroethane	mg/l	0.0255	0	.025	102.	59-135	L543782-01	WG562802
1,2-Dichloropropane	mg/l	0.0213	0	.025	85.1	68-126	L543782-01	WG562802
1,3,5-Trimethylbenzene	mg/l	0.0264	0	.025	105.	67-136	L543782-01	WG562802
1,3-Dichlorobenzene	mg/l	0.0273	0	.025	109.	69-131	L543782-01	WG562802
1,3-Dichloropropane	mg/l	0.0255	0	.025	102.	70-122	L543782-01	WG562802
1,4-Dichlorobenzene	mg/l	0.0239	0	.025	95.5	70-123	L543782-01	WG562802
2,2-Dichloropropane	mg/l	0.0230	0	.025	91.8	51-141	L543782-01	WG562802
2-Butanone (MEK)	mg/l	0.0972	0	.125	77.8	51-149	L543782-01	WG562802
2-Chloroethyl vinyl ether	mg/l	0	0	.125	0*	10-161	L543782-01	WG562802
2-Chlorotoluene	mg/l	0.0248	0	.025	99.2	65-133	L543782-01	WG562802
4-Chlorotoluene	mg/l	0.0248	0	.025	99.2	67-129	L543782-01	WG562802
4-Methyl-2-pentanone (MIBK)	mg/l	0.124	0	.125	99.3	53-154	L543782-01	WG562802
Acetone	mg/l	0.0979	0	.125	78.3	34-146	L543782-01	WG562802
Acrolein	mg/l	0.0129	0	.125	10.3	10-189	L543782-01	WG562802
Acrylonitrile	mg/l	0.102	0	.125	81.8	49-162	L543782-01	WG562802
Benzene	mg/l	0.0214	0	.025	85.4	51-134	L543782-01	WG562802
Bromobenzene	mg/l	0.0244	0	.025	97.8	64-130	L543782-01	WG562802
Bromodichloromethane	mg/l	0.0240	0	.025	96.0	67-132	L543782-01	WG562802
Bromoform	mg/l	0.0313	0	.025	125.	59-137	L543782-01	WG562802
Bromomethane	mg/l	0.0268	0	.025	107.	23-177	L543782-01	WG562802
Carbon disulfide	mg/l	0.0266	0	.025	106.	10-165	L543782-01	WG562802
Carbon tetrachloride	mg/l	0.0263	0	.025	105.	49-140	L543782-01	WG562802
Chlorobenzene	mg/l	0.0251	0	.025	100.	69-126	L543782-01	WG562802
Chlorodibromomethane	mg/l	0.0295	0	.025	118.	68-130	L543782-01	WG562802
Chloroethane	mg/l	0.0236	0	.025	94.4	32-177	L543782-01	WG562802
Chloroform	mg/l	0.0234	0	.025	93.5	64-130	L543782-01	WG562802
Chloromethane	mg/l	0.0233	0	.025	93.1	27-155	L543782-01	WG562802
cis-1,2-Dichloroethene	mg/l	0.0229	0	.025	91.7	54-137	L543782-01	WG562802
cis-1,3-Dichloropropene	mg/l	0.0222	0	.025	88.6	63-127	L543782-01	WG562802
Di-isopropyl ether	mg/l	0.0188	0	.025	75.2	58-133	L543782-01	WG562802
Dibromomethane	mg/l	0.0257	0	.025	103.	68-131	L543782-01	WG562802
Dichlorodifluoromethane	mg/l	0.0330	0	.025	132.	16-188	L543782-01	WG562802
Ethylbenzene	mg/l	0.0252	0	.025	101.	64-135	L543782-01	WG562802
Hexachloro-1,3-butadiene	mg/l	0.0257	0	.025	103.	64-140	L543782-01	WG562802
Isopropylbenzene	mg/l	0.0286	0	.025	114.	62-134	L543782-01	WG562802
Methyl tert-butyl ether	mg/l	0.0223	0	.025	89.3	55-136	L543782-01	WG562802
Methylene Chloride	mg/l	0.0197	0	.025	78.7	52-130	L543782-01	WG562802
n-Butylbenzene	mg/l	0.0217	0	.025	86.7	62-142	L543782-01	WG562802
n-Propylbenzene	mg/l	0.0252	0	.025	101.	62-137	L543782-01	WG562802
Naphthalene	mg/l	0.0222	0	.025	88.8	65-140	L543782-01	WG562802
p-Isopropyltoluene	mg/l	0.0278	0	.025	111.	64-142	L543782-01	WG562802
sec-Butylbenzene	mg/l	0.0267	0	.025	107.	67-139	L543782-01	WG562802
Styrene	mg/l	0.0179	0	.025	71.4	58-152	L543782-01	WG562802
tert-Butylbenzene	mg/l	0.0280	0	.025	112.	66-139	L543782-01	WG562802
Tetrachloroethene	mg/l	0.0294	0	.025	118.	56-139	L543782-01	WG562802
Toluene	mg/l	0.0234	0	.025	93.4	61-126	L543782-01	WG562802
trans-1,2-Dichloroethene	mg/l	0.0210	0	.025	84.1	45-137	L543782-01	WG562802
trans-1,3-Dichloropropene	mg/l	0.0237	0	.025	94.6	59-130	L543782-01	WG562802
Trichloroethene	mg/l	0.0274	0	.025	110.	40-155	L543782-01	WG562802
Trichlorofluoromethane	mg/l	0.0306	0	.025	122.	35-177	L543782-01	WG562802
Vinyl chloride	mg/l	0.0261	0	.025	104.	32-159	L543782-01	WG562802

* Performance of this Analyte is outside of established criteria.
For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'



YOUR LAB OF CHOICE

Oregon Dept. of Env. Quality - ODEQ
Katie Robertson
700 SE Emigrant, Suite 330

Pendleton, OR 97801

Quality Assurance Report
Level II

L543787

12065 Lebanon Rd.
Mt. Juliet, TN 37122
(615) 758-5858
1-800-767-5859
Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

November 03, 2011

Analyte	Units	MS Res	Matrix Spike		% Rec	Limit	Ref Samp	Batch
			Ref Res	TV				
Xylenes, Total	mg/l	0.0753	0	.075	100.	64-133	L543782-01	WG562802
4-Bromofluorobenzene					104.1	82-120		WG562802
Dibromofluoromethane					98.56	82-126		WG562802
Toluene-d8					103.9	92-112		WG562802
1,1,1,2-Tetrachloroethane	mg/kg	0.107	0	.025	85.5	49-135	L543787-04	WG562803
1,1,1-Trichloroethane	mg/kg	0.128	0	.025	102.	43-142	L543787-04	WG562803
1,1,2,2-Tetrachloroethane	mg/kg	0.0960	0	.025	76.8	42-147	L543787-04	WG562803
1,1,2-Trichloroethane	mg/kg	0.106	0	.025	85.0	51-134	L543787-04	WG562803
1,1,2-Trichlorotrifluoroethane	mg/kg	0.132	0	.025	105.	25-156	L543787-04	WG562803
1,1-Dichloroethane	mg/kg	0.106	0	.025	84.8	50-131	L543787-04	WG562803
1,1-Dichloroethene	mg/kg	0.126	0	.025	100.	29-145	L543787-04	WG562803
1,1-Dichloropropene	mg/kg	0.112	0	.025	90.0	40-136	L543787-04	WG562803
1,2,3-Trichlorobenzene	mg/kg	0.0940	0	.025	75.2	13-142	L543787-04	WG562803
1,2,3-Trichloropropane	mg/kg	0.0976	0	.025	78.0	41-149	L543787-04	WG562803
1,2,3-Trimethylbenzene	mg/kg	0.0992	0	.025	79.4	33-146	L543787-04	WG562803
1,2,4-Trichlorobenzene	mg/kg	0.106	0	.025	84.5	12-140	L543787-04	WG562803
1,2,4-Trimethylbenzene	mg/kg	0.107	0	.025	86.0	29-143	L543787-04	WG562803
1,2-Dibromo-3-Chloropropane	mg/kg	0.0807	0	.025	64.6	29-151	L543787-04	WG562803
1,2-Dibromoethane	mg/kg	0.103	0	.025	82.8	48-133	L543787-04	WG562803
1,2-Dichlorobenzene	mg/kg	0.105	0	.025	83.7	37-136	L543787-04	WG562803
1,2-Dichloroethane	mg/kg	0.101	0	.025	80.6	49-131	L543787-04	WG562803
1,2-Dichloropropene	mg/kg	0.0986	0	.025	78.9	50-132	L543787-04	WG562803
1,3,5-Trimethylbenzene	mg/kg	0.113	0	.025	90.4	29-144	L543787-04	WG562803
1,3-Dichlorobenzene	mg/kg	0.113	0	.025	90.4	26-140	L543787-04	WG562803
1,3-Dichloropropene	mg/kg	0.0994	0	.025	79.6	50-126	L543787-04	WG562803
1,4-Dichlorobenzene	mg/kg	0.105	0	.025	84.0	34-132	L543787-04	WG562803
2,2-Dichloropropene	mg/kg	0.120	0	.025	95.9	35-148	L543787-04	WG562803
2-Butanone (MEK)	mg/kg	0.387	0	.125	62.0	40-149	L543787-04	WG562803
2-Chloroethyl vinyl ether	mg/kg	0.310	0	.125	49.5	10-173	L543787-04	WG562803
2-Chlorotoluene	mg/kg	0.107	0	.025	85.6	34-136	L543787-04	WG562803
4-Chlorotoluene	mg/kg	0.109	0	.025	87.5	31-137	L543787-04	WG562803
4-Methyl-2-pentanone (MIBK)	mg/kg	0.417	0	.125	66.7	37-153	L543787-04	WG562803
Acetone	mg/kg	0.433	0	.125	69.3	10-177	L543787-04	WG562803
Acrylonitrile	mg/kg	0.426	0	.125	68.1	33-159	L543787-04	WG562803
Benzene	mg/kg	0.104	0	.025	83.0	44-131	L543787-04	WG562803
Bromobenzene	mg/kg	0.107	0	.025	85.2	36-132	L543787-04	WG562803
Bromodichloromethane	mg/kg	0.0944	0	.025	75.5	48-134	L543787-04	WG562803
Bromoform	mg/kg	0.0828	0	.025	66.2	34-141	L543787-04	WG562803
Bromomethane	mg/kg	0.123	0	.025	98.3	19-173	L543787-04	WG562803
Carbon disulfide	mg/kg	0.112	0	.025	89.7	10-156	L543787-04	WG562803
Carbon tetrachloride	mg/kg	0.112	0	.025	89.2	36-140	L543787-04	WG562803
Chlorobenzene	mg/kg	0.107	0	.025	85.3	42-133	L543787-04	WG562803
Chlorodibromomethane	mg/kg	0.0852	0	.025	68.1	45-135	L543787-04	WG562803
Chloroethane	mg/kg	0.128	0	.025	102.	16-178	L543787-04	WG562803
Chloroform	mg/kg	0.107	0	.025	85.5	52-130	L543787-04	WG562803
Chloromethane	mg/kg	0.107	0	.025	85.5	28-147	L543787-04	WG562803
cis-1,2-Dichloroethene	mg/kg	0.106	0	.025	84.5	52-128	L543787-04	WG562803
cis-1,3-Dichloropropene	mg/kg	0.0940	0	.025	75.2	46-131	L543787-04	WG562803
Di-isopropyl ether	mg/kg	0.0900	0	.025	72.0	46-134	L543787-04	WG562803
Dibromomethane	mg/kg	0.0950	0	.025	76.0	51-133	L543787-04	WG562803
Dichlorodifluoromethane	mg/kg	0.125	0	.025	100.	12-179	L543787-04	WG562803
Ethylbenzene	mg/kg	0.111	0	.025	89.0	38-139	L543787-04	WG562803
Hexachloro-1,3-butadiene	mg/kg	0.112	0	.025	89.5	10-147	L543787-04	WG562803
Isopropylbenzene	mg/kg	0.126	0	.025	101.	34-137	L543787-04	WG562803
Methyl tert-butyl ether	mg/kg	0.0885	0	.025	70.8	45-134	L543787-04	WG562803
Methylene Chloride	mg/kg	0.0957	0	.025	76.6	41-133	L543787-04	WG562803
n-Butylbenzene	mg/kg	0.117	0	.025	93.6	19-149	L543787-04	WG562803

* Performance of this Analyte is outside of established criteria.

For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'



YOUR LAB OF CHOICE

Oregon Dept. of Env. Quality - ODEQ
Katie Robertson
700 SE Emigrant, Suite 330

Pendleton, OR 97801

Quality Assurance Report
Level II

L543787

12065 Lebanon Rd.
Mt. Juliet, TN 37122
(615) 758-5858
1-800-767-5859
Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

November 03, 2011

Analyte	Units	MS Res	Matrix Spike		% Rec	Limit	Ref Samp	Batch
			Ref Res	TV				
n-Propylbenzene	mg/kg	0.115	0	.025	91.9	27-142	L543787-04	WG562803
Naphthalene	mg/kg	0.0860	0	.025	68.8	19-146	L543787-04	WG562803
p-Isopropyltoluene	mg/kg	0.119	0	.025	95.2	21-150	L543787-04	WG562803
sec-Butylbenzene	mg/kg	0.116	0	.025	92.6	25-148	L543787-04	WG562803
Styrene	mg/kg	0.0771	0	.025	61.6	30-156	L543787-04	WG562803
tert-Butylbenzene	mg/kg	0.116	0	.025	93.2	32-146	L543787-04	WG562803
Tetrachloroethene	mg/kg	0.136	0.00220	.025	107.	35-139	L543787-04	WG562803
Toluene	mg/kg	0.103	0	.025	82.2	43-127	L543787-04	WG562803
trans-1,2-Dichloroethene	mg/kg	0.112	0	.025	89.3	41-132	L543787-04	WG562803
trans-1,3-Dichloropropene	mg/kg	0.0820	0	.025	65.6	43-129	L543787-04	WG562803
Trichloroethene	mg/kg	0.113	0	.025	90.6	42-136	L543787-04	WG562803
Trichlorofluoromethane	mg/kg	0.128	0	.025	102.	20-178	L543787-04	WG562803
Vinyl chloride	mg/kg	0.122	0	.025	97.9	30-157	L543787-04	WG562803
Xylenes, Total	mg/kg	0.326	0	.075	87.0	38-137	L543787-04	WG562803
4-Bromofluorobenzene					97.76	67-133		WG562803
Dibromofluoromethane					99.56	72-135		WG562803
Toluene-d8					97.92	90-113		WG562803
a,a,a-Trifluorotoluene					102.8	89-115		WG562803

Analyte	Units	MSD	Matrix Spike Duplicate		Limit	RPD	Limit	Ref Samp	Batch
			Ref	%Rec					
1,1,1,2-Tetrachloroethane	mg/l	0.0268	0.0277	107.	71-130	3.50	20	L543782-01	WG562802
1,1,1-Trichloroethane	mg/l	0.0239	0.0243	95.7	58-137	1.55	20	L543782-01	WG562802
1,1,2,2-Tetrachloroethane	mg/l	0.0225	0.0235	90.0	64-149	4.37	20	L543782-01	WG562802
1,1,2-Trichloroethane	mg/l	0.0254	0.0258	102.	73-128	1.70	20	L543782-01	WG562802
1,1,2-Trichlorotrifluoroethane	mg/l	0.0272	0.0284	109.	36-159	4.34	21	L543782-01	WG562802
1,1-Dichloroethane	mg/l	0.0215	0.0224	86.1	58-133	4.15	20	L543782-01	WG562802
1,1-Dichloroethene	mg/l	0.0260	0.0288	104.	32-152	10.2	20	L543782-01	WG562802
1,1-Dichloropropene	mg/l	0.0219	0.0232	87.7	50-140	5.64	20	L543782-01	WG562802
1,2,3-Trichlorobenzene	mg/l	0.0230	0.0232	92.1	68-135	0.720	20	L543782-01	WG562802
1,2,3-Trichloropropane	mg/l	0.0228	0.0276	91.0	74-137	19.4	20	L543782-01	WG562802
1,2,3-Trimethylbenzene	mg/l	0.0213	0.0215	85.2	67-133	1.14	20	L543782-01	WG562802
1,2,4-Trichlorobenzene	mg/l	0.0249	0.0244	99.6	67-133	1.85	20	L543782-01	WG562802
1,2,4-Trimethylbenzene	mg/l	0.0254	0.0251	102.	62-141	1.10	20	L543782-01	WG562802
1,2-Dibromo-3-Chloropropane	mg/l	0.0240	0.0259	96.1	55-148	7.56	22	L543782-01	WG562802
1,2-Dibromoethane	mg/l	0.0260	0.0269	104.	71-129	3.30	20	L543782-01	WG562802
1,2-Dichlorobenzene	mg/l	0.0234	0.0238	93.6	75-125	1.55	20	L543782-01	WG562802
1,2-Dichloroethane	mg/l	0.0240	0.0255	95.9	59-135	6.25	20	L543782-01	WG562802
1,2-Dichloropropane	mg/l	0.0219	0.0213	87.8	68-126	3.07	20	L543782-01	WG562802
1,3,5-Trimethylbenzene	mg/l	0.0265	0.0264	106.	67-136	0.390	20	L543782-01	WG562802
1,3-Dichlorobenzene	mg/l	0.0279	0.0273	112.	69-131	2.38	20	L543782-01	WG562802
1,3-Dichloropropane	mg/l	0.0251	0.0255	100.	70-122	1.43	20	L543782-01	WG562802
1,4-Dichlorobenzene	mg/l	0.0238	0.0239	95.4	70-123	0.170	20	L543782-01	WG562802
2,2-Dichloropropane	mg/l	0.0231	0.0230	92.3	51-141	0.460	20	L543782-01	WG562802
2-Butanone (MEK)	mg/l	0.0871	0.0972	69.6	51-149	11.0	22	L543782-01	WG562802
2-Chloroethyl vinyl ether	mg/l	0	0	0*	10-161	0	40	L543782-01	WG562802
2-Chlorotoluene	mg/l	0.0250	0.0248	100.	65-133	0.790	20	L543782-01	WG562802
4-Chlorotoluene	mg/l	0.0248	0.0248	99.3	67-129	0.0700	20	L543782-01	WG562802
4-Methyl-2-pentanone (MIBK)	mg/l	0.111	0.124	89.0	53-154	10.9	21	L543782-01	WG562802
Acetone	mg/l	0.0926	0.0979	74.1	34-146	5.53	22	L543782-01	WG562802
Acrolein	mg/l	0.00845	0.0129	6.76*	10-189	41.5*	30	L543782-01	WG562802
Acrylonitrile	mg/l	0.0932	0.102	74.6	49-162	9.19	20	L543782-01	WG562802
Benzene	mg/l	0.0206	0.0214	82.5	51-134	3.53	20	L543782-01	WG562802
Bromobenzene	mg/l	0.0244	0.0244	97.5	64-130	0.220	20	L543782-01	WG562802
Bromodichloromethane	mg/l	0.0236	0.0240	94.4	67-132	1.75	20	L543782-01	WG562802
Bromoform	mg/l	0.0299	0.0313	120.	59-137	4.48	20	L543782-01	WG562802
Bromomethane	mg/l	0.0272	0.0268	109.	23-177	1.27	21	L543782-01	WG562802
Carbon disulfide	mg/l	0.0253	0.0266	101.	10-165	4.96	22	L543782-01	WG562802

* Performance of this Analyte is outside of established criteria.

For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'



YOUR LAB OF CHOICE

Oregon Dept. of Env. Quality - ODEQ
Katie Robertson
700 SE Emigrant, Suite 330

Pendleton, OR 97801

Quality Assurance Report
Level II

L543787

12065 Lebanon Rd.
Mt. Juliet, TN 37122
(615) 758-5858
1-800-767-5859
Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

November 03, 2011

Analyte	Units	MSD	Matrix Spike Duplicate		Limit	RPD	Limit Ref	Samp	Batch
			Ref	%Rec					
Carbon tetrachloride	mg/l	0.0247	0.0263	98.7	49-140	6.30	20	L543782-01	WG562802
Chlorobenzene	mg/l	0.0247	0.0251	98.7	69-126	1.73	20	L543782-01	WG562802
Chlorodibromomethane	mg/l	0.0276	0.0295	110.	68-130	6.59	20	L543782-01	WG562802
Chloroethane	mg/l	0.0220	0.0236	87.9	32-177	7.21	21	L543782-01	WG562802
Chloroform	mg/l	0.0224	0.0234	89.5	64-130	4.33	20	L543782-01	WG562802
Chloromethane	mg/l	0.0230	0.0233	92.1	27-155	1.10	20	L543782-01	WG562802
cis-1,2-Dichloroethene	mg/l	0.0217	0.0229	86.8	54-137	5.45	20	L543782-01	WG562802
cis-1,3-Dichloropropene	mg/l	0.0224	0.0222	89.5	63-127	1.00	20	L543782-01	WG562802
Di-isopropyl ether	mg/l	0.0177	0.0188	71.0	58-133	5.84	20	L543782-01	WG562802
Dibromomethane	mg/l	0.0248	0.0257	99.3	68-131	3.63	20	L543782-01	WG562802
Dichlorodifluoromethane	mg/l	0.0324	0.0330	130.	16-188	1.63	22	L543782-01	WG562802
Ethylbenzene	mg/l	0.0239	0.0252	95.7	64-135	5.02	20	L543782-01	WG562802
Hexachloro-1,3-butadiene	mg/l	0.0255	0.0257	102.	64-140	0.860	20	L543782-01	WG562802
Isopropylbenzene	mg/l	0.0289	0.0286	116.	62-134	1.05	20	L543782-01	WG562802
Methyl tert-butyl ether	mg/l	0.0218	0.0223	87.2	55-136	2.37	20	L543782-01	WG562802
Methylene Chloride	mg/l	0.0216	0.0197	86.5	52-130	9.40	20	L543782-01	WG562802
n-Butylbenzene	mg/l	0.0220	0.0217	88.1	62-142	1.68	20	L543782-01	WG562802
n-Propylbenzene	mg/l	0.0253	0.0252	101.	62-137	0.240	20	L543782-01	WG562802
Naphthalene	mg/l	0.0225	0.0222	90.1	65-140	1.44	20	L543782-01	WG562802
p-Isopropyltoluene	mg/l	0.0273	0.0278	109.	64-142	1.79	20	L543782-01	WG562802
sec-Butylbenzene	mg/l	0.0262	0.0267	105.	67-139	1.86	20	L543782-01	WG562802
Styrene	mg/l	0.0180	0.0179	72.2	58-152	1.10	20	L543782-01	WG562802
tert-Butylbenzene	mg/l	0.0281	0.0280	112.	66-139	0.490	20	L543782-01	WG562802
Tetrachloroethene	mg/l	0.0295	0.0294	118.	56-139	0.170	20	L543782-01	WG562802
Toluene	mg/l	0.0228	0.0234	91.0	61-126	2.62	20	L543782-01	WG562802
trans-1,2-Dichloroethene	mg/l	0.0211	0.0210	84.2	45-137	0.150	20	L543782-01	WG562802
trans-1,3-Dichloropropene	mg/l	0.0227	0.0237	90.7	59-130	4.21	20	L543782-01	WG562802
Trichloroethene	mg/l	0.0266	0.0274	106.	40-155	3.05	20	L543782-01	WG562802
Trichlorofluoromethane	mg/l	0.0285	0.0306	114.	35-177	7.07	23	L543782-01	WG562802
Vinyl chloride	mg/l	0.0240	0.0261	95.9	32-159	8.49	21	L543782-01	WG562802
Xylenes, Total	mg/l	0.0755	0.0753	101.	64-133	0.210	20	L543782-01	WG562802
4-Bromofluorobenzene				106.4	82-120				WG562802
Dibromofluoromethane				96.68	82-126				WG562802
Toluene-d8				106.0	92-112				WG562802
1,1,1,2-Tetrachloroethane	mg/kg	0.0812	0.107	65.0	49-135	27.3*	23	L543787-04	WG562803
1,1,1-Trichloroethane	mg/kg	0.0986	0.128	78.9	43-142	25.7*	24	L543787-04	WG562803
1,1,2,2-Tetrachloroethane	mg/kg	0.0690	0.0960	55.2	42-147	32.7*	25	L543787-04	WG562803
1,1,2-Trichloroethane	mg/kg	0.0778	0.106	62.3	51-134	30.9*	21	L543787-04	WG562803
1,1,2-Trichlorotrifluoroethane	mg/kg	0.0886	0.132	70.9	25-156	39.2*	29	L543787-04	WG562803
1,1-Dichloroethane	mg/kg	0.0842	0.106	67.4	50-131	22.9*	21	L543787-04	WG562803
1,1-Dichloroethene	mg/kg	0.0999	0.126	80.0	29-145	22.7	28	L543787-04	WG562803
1,1-Dichloropropene	mg/kg	0.0862	0.112	69.0	40-136	26.4*	24	L543787-04	WG562803
1,2,3-Trichlorobenzene	mg/kg	0.0513	0.0940	41.0	13-142	58.8*	33	L543787-04	WG562803
1,2,3-Trichloropropane	mg/kg	0.0780	0.0976	62.4	41-149	22.3	28	L543787-04	WG562803
1,2,3-Trimethylbenzene	mg/kg	0.0647	0.0992	51.8	33-146	42.1*	27	L543787-04	WG562803
1,2,4-Trichlorobenzene	mg/kg	0.0582	0.106	46.5	12-140	58.0*	32	L543787-04	WG562803
1,2,4-Trimethylbenzene	mg/kg	0.0702	0.107	56.2	29-143	41.9*	30	L543787-04	WG562803
1,2-Dibromo-3-Chloropropane	mg/kg	0.0530	0.0807	42.4	29-151	41.5*	31	L543787-04	WG562803
1,2-Dibromoethane	mg/kg	0.0754	0.103	60.3	48-133	31.4*	22	L543787-04	WG562803
1,2-Dichlorobenzene	mg/kg	0.0673	0.105	53.9	37-136	43.4*	25	L543787-04	WG562803
1,2-Dichloroethane	mg/kg	0.0761	0.101	60.9	49-131	27.8*	20	L543787-04	WG562803
1,2-Dichloropropane	mg/kg	0.0761	0.0986	60.9	50-132	25.7*	21	L543787-04	WG562803
1,3,5-Trimethylbenzene	mg/kg	0.0738	0.113	59.0	29-144	42.0*	30	L543787-04	WG562803
1,3-Dichlorobenzene	mg/kg	0.0707	0.113	56.5	26-140	46.1*	28	L543787-04	WG562803
1,3-Dichloropropane	mg/kg	0.0754	0.0994	60.3	50-126	27.5*	22	L543787-04	WG562803
1,4-Dichlorobenzene	mg/kg	0.0661	0.105	52.8	34-132	45.6*	26	L543787-04	WG562803
2,2-Dichloropropane	mg/kg	0.104	0.120	83.0	35-148	14.4	26	L543787-04	WG562803

* Performance of this Analyte is outside of established criteria.

For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'



YOUR LAB OF CHOICE

Oregon Dept. of Env. Quality - ODEQ
Katie Robertson
700 SE Emigrant, Suite 330

Pendleton, OR 97801

Quality Assurance Report
Level II

L543787

12065 Lebanon Rd.
Mt. Juliet, TN 37122
(615) 758-5858
1-800-767-5859
Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

November 03, 2011

Analyte	Units	MSD	Matrix Spike Duplicate		Limit	RPD	Limit Ref	Samp	Batch
			Ref	%Rec					
2-Butanone (MEK)	mg/kg	0.282	0.387	45.2	40-149	31.3*	27	L543787-04	WG562803
2-Chloroethyl vinyl ether	mg/kg	0.336	0.310	53.8	10-173	8.21	33	L543787-04	WG562803
2-Chlorotoluene	mg/kg	0.0757	0.107	60.6	34-136	34.3*	28	L543787-04	WG562803
4-Chlorotoluene	mg/kg	0.0743	0.109	59.4	31-137	38.2*	27	L543787-04	WG562803
4-Methyl-2-pentanone (MIBK)	mg/kg	0.329	0.417	52.7	37-153	23.5	27	L543787-04	WG562803
Acetone	mg/kg	0.308	0.433	49.2	10-177	33.9*	28	L543787-04	WG562803
Acrylonitrile	mg/kg	0.315	0.426	50.3	33-159	30.0*	26	L543787-04	WG562803
Benzene	mg/kg	0.0807	0.104	64.5	44-131	25.1*	21	L543787-04	WG562803
Bromobenzene	mg/kg	0.0766	0.107	61.3	36-132	32.7*	26	L543787-04	WG562803
Bromodichloromethane	mg/kg	0.0730	0.0944	58.4	48-134	25.6*	20	L543787-04	WG562803
Bromoform	mg/kg	0.0608	0.0828	48.7	34-141	30.6*	24	L543787-04	WG562803
Bromomethane	mg/kg	0.102	0.123	81.9	19-173	18.2	25	L543787-04	WG562803
Carbon disulfide	mg/kg	0.0905	0.112	72.4	10-156	21.4	29	L543787-04	WG562803
Carbon tetrachloride	mg/kg	0.0843	0.112	67.4	36-140	27.8*	26	L543787-04	WG562803
Chlorobenzene	mg/kg	0.0807	0.107	64.6	42-133	27.6*	24	L543787-04	WG562803
Chlorodibromomethane	mg/kg	0.0624	0.0852	49.9	45-135	30.9*	23	L543787-04	WG562803
Chloroethane	mg/kg	0.107	0.128	85.8	16-178	17.6	25	L543787-04	WG562803
Chloroform	mg/kg	0.0844	0.107	67.5	52-130	23.5*	21	L543787-04	WG562803
Chloromethane	mg/kg	0.0898	0.107	71.9	28-147	17.3	23	L543787-04	WG562803
cis-1,2-Dichloroethene	mg/kg	0.0818	0.106	65.5	52-128	25.4*	21	L543787-04	WG562803
cis-1,3-Dichloropropene	mg/kg	0.0720	0.0940	57.6	46-131	26.6*	21	L543787-04	WG562803
Di-isopropyl ether	mg/kg	0.0682	0.0900	54.5	46-134	27.6*	20	L543787-04	WG562803
Dibromomethane	mg/kg	0.0738	0.0950	59.0	51-133	25.2*	21	L543787-04	WG562803
Dichlorodifluoromethane	mg/kg	0.0862	0.125	68.9	12-179	36.8*	27	L543787-04	WG562803
Ethylbenzene	mg/kg	0.0852	0.111	68.2	38-139	26.5	27	L543787-04	WG562803
Hexachloro-1,3-butadiene	mg/kg	0.0587	0.112	47.0	10-147	62.3*	37	L543787-04	WG562803
Isopropylbenzene	mg/kg	0.0852	0.126	68.2	34-137	38.6*	29	L543787-04	WG562803
Methyl tert-butyl ether	mg/kg	0.0710	0.0885	56.8	45-134	22.0	22	L543787-04	WG562803
Methylene Chloride	mg/kg	0.0749	0.0957	59.9	41-133	24.4	28	L543787-04	WG562803
n-Butylbenzene	mg/kg	0.0659	0.117	52.7	19-149	55.9*	32	L543787-04	WG562803
n-Propylbenzene	mg/kg	0.0779	0.115	62.3	27-142	38.3*	29	L543787-04	WG562803
Naphthalene	mg/kg	0.0505	0.0860	40.4	19-146	52.1*	30	L543787-04	WG562803
p-Isopropyltoluene	mg/kg	0.0702	0.119	56.1	21-150	51.7*	31	L543787-04	WG562803
sec-Butylbenzene	mg/kg	0.0709	0.116	56.7	25-148	48.0*	31	L543787-04	WG562803
Styrene	mg/kg	0.0561	0.0771	44.9	30-156	31.5*	26	L543787-04	WG562803
tert-Butylbenzene	mg/kg	0.0727	0.116	58.2	32-146	46.3*	30	L543787-04	WG562803
Tetrachloroethene	mg/kg	0.0905	0.136	70.6	35-139	40.3*	27	L543787-04	WG562803
Toluene	mg/kg	0.0816	0.103	65.3	43-127	23.0*	21	L543787-04	WG562803
trans-1,2-Dichloroethene	mg/kg	0.0859	0.112	68.7	41-132	26.0*	23	L543787-04	WG562803
trans-1,3-Dichloropropene	mg/kg	0.0640	0.0820	51.2	43-129	24.7*	23	L543787-04	WG562803
Trichloroethene	mg/kg	0.0860	0.113	68.8	42-136	27.4*	23	L543787-04	WG562803
Trichlorofluoromethane	mg/kg	0.0976	0.128	78.1	20-178	27.0	30	L543787-04	WG562803
Vinyl chloride	mg/kg	0.104	0.122	83.3	30-157	16.1	24	L543787-04	WG562803
Xylenes, Total	mg/kg	0.245	0.326	65.3	38-137	28.5*	26	L543787-04	WG562803
4-Bromofluorobenzene				103.2	67-133				WG562803
Dibromofluoromethane				97.89	72-135				WG562803
Toluene-d8				100.9	90-113				WG562803
a,a,a-Trifluorotoluene				104.6	89-115				WG562803

Batch number /Run number / Sample number cross reference

WG562802: R1917014: L543787-01 06 07 08 09 10
WG562803: R1917132: L543787-02 03 04 05
WG563248: R1918393: L543787-04 05
WG563246: R1919834: L543787-02 03

* * Calculations are performed prior to rounding of reported values.
* Performance of this Analyte is outside of established criteria.
For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'



YOUR LAB OF CHOICE

Oregon Dept. of Env. Quality - ODEQ
Katie Robertson
700 SE Emigrant, Suite 330

Pendleton, OR 97801

Quality Assurance Report
Level II

L543787

12065 Lebanon Rd.
Mt. Juliet, TN 37122
(615) 758-5858
1-800-767-5859
Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

November 03, 2011

The data package includes a summary of the analytic results of the quality control samples required by the SW-846 or CWA methods. The quality control samples include a method blank, a laboratory control sample, and the matrix spike/matrix spike duplicate analysis. If a target parameter is outside the method limits, every sample that is effected is flagged with the appropriate qualifier in Appendix B of the analytic report.

Method Blank - an aliquot of reagent water carried through the entire analytic process. The method blank results indicate if any possible contamination exposure during the sample handling, digestion or extraction process, and analysis. Concentrations of target analytes above the reporting limit in the method blank are qualified with the "B" qualifier.

Laboratory Control Sample - is a sample of known concentration that is carried through the digestion/extraction and analysis process. The percent recovery, expressed as a percentage of the theoretical concentration, has statistical control limits indicating that the analytic process is "in control". If a target analyte is outside the control limits for the laboratory control sample or any other control sample, the parameter is flagged with a "J4" qualifier for all effected samples.

Matrix Spike and Matrix Spike Duplicate - is two aliquots of an environmental sample that is spiked with known concentrations of target analytes. The percent recovery of the target analytes also has statistical control limits. If any recoveries that are outside the method control limits, the sample that was selected for matrix spike/matrix spike duplicate analysis is flagged with either a "J5" or a "J6". The relative percent difference (%RPD) between the matrix spike and the matrix spike duplicate recoveries is all calculated. If the RPD is above the method limit, the effected samples are flagged with a "J3" qualifier.

1062

Agency, Authorized Purchaser or Agent: ODEQ *OREGONDEQ-QUALITY*		Contract Laboratory Name: ESC Lab Sciences		Lab Selection Criteria: <input type="checkbox"/> Proximity (if TAT < 48 hrs) <input type="checkbox"/> Prior work on same project <input type="checkbox"/> Cost (for anticipated analyses) <input checked="" type="checkbox"/> Other labs disqualified or unable to perform requested services <input type="checkbox"/> Emergency work		Turn Around Time: <input checked="" type="checkbox"/> 10 days (std.) <input type="checkbox"/> 5 days <input type="checkbox"/> 72 hours <input type="checkbox"/> 48 hours <input type="checkbox"/> 24 hours <input type="checkbox"/> Other	
Send Lab Report To: Katie Robertson Address: 700 SE Emigrant, Suite 330 Pendleton, OR 97801 Tel. #: (541) 278-4620 E-mail: robertson.katie@deq.state.or.us		Lab Batch #:		Invoice To: ODEQ/Business Office Address: 811 SW 6 th Ave Portland, OR 97204 Tel. #: (800) 452-4011			

Project Name: Rainbow Cleaners - Canyon Blvd Project #: 5209				Sample Preservative								Requested Analyses
NP/HCL	NP/HCL	NP/HNO3	NP									
Sampler Name: Katie Robertson				Requested Analyses								

Sample ID#	Collection Date/Time	Matrix	Number of Containers	Standard Solvent HCL/EPA 8015	VOCs 8260B	RCRA 8 Metals total	pH								Comments
Trip Blank	10/25/11	W	1		X										LS45781-01
B1(14)	1325	S	2		X										02
B2(14)	1425	S	2		X										03
B2(14)D	1425	S	2		X										04
B3(115)	1520	S	2		X										05
B1	1350	W	3		X										06
B2	1440	W	3		X										07
B3D	1440	W	3		X										08
B3	1530	W	3		X										09

Notes: Need low VOC detection levels in gw - PCE 0.093 ug/l, TCE 0.039 ug/l

Relinquished By: Katie Robertson		Agency/Agent: ODEQ		Received By: FedEx		Agency/Agent:	
Signature: <i>Katie Robertson</i>		Time & Date: 10/26/11		Signature:		Time & Date:	
Relinquished By:		Agency/Agent:		Received By: Max Bryson		Agency/Agent:	
Signature:		Time & Date:		Signature: <i>Max Bryson</i>		Time & Date: 10-27-11, 13:45	

THIS PURCHASE IS SUBMITTED PURSUANT TO STATE OF OREGON SOLICITATION #102-1098-07 AND PRICE AGREEMENT # 8903. THE PRICE AGREEMENT INCLUDING CONTRACT TERMS AND CONDITIONS AND SPECIAL CONTRACT TERMS AND CONDITIONS (T'S & C'S) CONTAINED IN THE PRICE AGREEMENT ARE HEREBY INCORPORATED BY REFERENCE AND SHALL APPLY TO THIS PURCHASE AND SHALL TAKE PRECEDENCE OVER ALL OTHER CONFLICTING T'S AND C'S, EXPRESS OR IMPLIED.

3.4" eccc5 OK

State of Oregon Chain of Custody

2062

Agency, Authorized Purchaser or Agent: ODEQ *OREGONDEQ-QUALITY*	Contract Laboratory Name: ESC Lab Sciences	Lab Selection Criteria: <input type="checkbox"/> Proximity (if TAT < 48 hrs) <input type="checkbox"/> Prior work on same project <input type="checkbox"/> Cost (for anticipated analyses) <input checked="" type="checkbox"/> Other labs disqualified or <u>unable</u> to perform requested services <input type="checkbox"/> Emergency work	Turn Around Time: <input checked="" type="checkbox"/> 10 days (std.) <input type="checkbox"/> 5 days <input type="checkbox"/> 72 hours <input type="checkbox"/> 48 hours <input type="checkbox"/> 24 hours <input type="checkbox"/> Other
Send Lab Report To: Katie Robertson Address: 700 SE Emigrant, Suite 330 Pendleton, OR 97801 Tel. #: (541) 278-4620 E-mail: robertson.katie@deq.state.or.us	Lab Batch #: Invoice To: ODEQ/Business Office Address: 811 SW 6 th Ave Portland, OR 97204 Tel. #: (800) 452-4011		

Project Name: Rainbow Cleaners – Canyon Blvd Project #: 5209	Sample Preservative								
	NP/ HCL	NP/ HCL	NP/ HNO3	NP					
Sampler Name: Katie Robertson	Requested Analyses								

Sample ID#	Collection Date/Time	Matrix	Number of Containers	Standard Solvent HCL/EPA 8015	VOCs 8260B	RCRA 8 Metals total	pH							Comments
Trip Blank		W	1		X	KPR								L 543187
transfer	10/26/11 1300	W	3		X									-10

Notes:
Need low VOC detection levels in gw – PCE 0.093 ug/l, TCE 0.039 ug/l

TRK# 5076 5816 5121

Relinquished By: Katie Robertson	Agency/Agent: ODEQ	Received By: FedEx	Agency/Agent:
Signature: <i>Katie Robertson</i>	Time & Date: 10/26/11	Signature:	Time & Date:
Relinquished By:	Agency/Agent:	Received By: <i>Max Bryson</i>	Agency/Agent:
Signature:	Time & Date:	Signature: <i>Max Bryson</i>	Time & Date: 10-27-11, 13:45

THIS PURCHASE IS SUBMITTED PURSUANT TO STATE OF OREGON SOLICITATION #102-1098-07 AND PRICE AGREEMENT # 8903. THE PRICE AGREEMENT INCLUDING CONTRACT TERMS AND CONDITIONS AND SPECIAL CONTRACT TERMS AND CONDITIONS (T'S & C'S) CONTAINED IN THE PRICE AGREEMENT ARE HEREBY INCORPORATED BY REFERENCE AND SHALL APPLY TO THIS PURCHASE AND SHALL TAKE PRECEDENCE OVER ALL OTHER CONFLICTING T'S AND C'S, EXPRESS OR IMPLIED.

3.40

OK

APPENDIX D
SELECT WELL LOGS
WELL LOG SUMMARY TABLES

Well Log Query Results

Township: 13 S, Range: 31 E, Sections: 14,15,16

GRAN_385	13.00S-31.00E-14			TROWBRIDGE, BUD JOHN DAY OR 97845		W		300.00			07/07/1969	08/26/1969	SKINNER, CATHERINE SKINNER & SONS			√	
GRAN_50540	13.00S-31.00E-16 SW-SE	1016	PATTERSON RD	COWAN THOMPSEN, ROBERT	COWAN, THOMPSEN, KAY 4700 PATTERSON BRIDGE RD JOHN DAY OR 97845	W	61.00	88.00	1.0	100.0	11/18/2002	12/06/2002	MARCIEL, JOHN MARCIEL WELL DRILLING & PUMPS	152153	53259	√	√
GRAN_50774	13.00S-31.00E-15 NE-NW	1009	DAVIS CREEK RD	BROWN, MARK	BROWN, SUSIE PO BOX 248 CANYON CITY OR 97820	W		513.00	0.0	0.0	07/27/2005	08/03/2005	MARCIEL, JOHN MARCIEL WELL DRILLING & PUMPS	170175	53297	√	√
GRAN_50928	13.00S-31.00E-14	1009	CLARK CREEK RD	BARKHURST, BLAIR PO BOX 463 TERREBONNE OR 97760		W	89.00	120.00	12.0	30.0	12/18/2007	03/06/2008	NEAL, JAMES W JWN COMPANY INC	195156	93380	√	√

[Download Data](#)[Return to Well Log Query](#)

Well Log Query Results

Township: 13 S, Range: 31 E, Sections: 2,4,5,8,9,11,12,13,17,18

No Records found matching that criteria, try entering just the Township, Range, and Section

[Download Data](#)

[Return to Well Log Query](#)

Well Log Query Results

Township: 13 S, Range: 31 E, Sections: 21

Well ID	Section	Range	Township	Owner	Well Type	Depth (ft)	Flow Rate (gpm)	Pressure (psi)	Completion Date	Production Date	Operator	Flow Status	Pressure Status	Flow Test Status	Production Status	
GRAN_392	13.00S-31.00E-21 SE-NW			MALHEUR LUMBER CO. JOHN DAY OR 97845	W	22.00	40.00	18.0	15.0	06/16/1987	09/23/1987	JOBE, BOND	√		√	
GRAN_393	13.00S-31.00E-21 SE-NW			MALHEUR LUMBER CO. JOHN DAY OR 97845	W	22.00	30.00	15.0	50.0	06/19/1987	08/10/1987	JOBE, BOND	√		√	
GRAN_394	13.00S-31.00E-21 SE-SE			HILLIARD, BILL BOX 302 JOHN DAY OR 97845	W		170.00	25.0	10.0	05/28/1987	06/25/1987	JOBE, BOND	√		√	
GRAN_395	13.00S-31.00E-21 SW-SW			AASNESS, JOHN WEST HWY JOHN DAY OR 97845	W		0.00			08/07/1981	09/28/1981	JOBE, BOND JOBE DRILLING INC.	√	√		
GRAN_396	13.00S-31.00E-21 SW-NE			BLUE, DONALD PO BOX 192 JOHN DAY OR 97845	W	32.00	72.00	17.0	20.0	07/19/1978	04/23/1979	BLUE, DON	√		√	
GRAN_397	13.00S-31.00E-21 SW-SE			ZICKLER, RICHARD 414 SW BRENT DR JOHN DAY OR 97845	W	35.00	55.00	20.0	3.0	01/21/1976	02/23/1976	JOBE, BOND NORTHWEST DRILLING	√		√	
GRAN_398	13.00S-31.00E-21 SE-SE			IDEAL GAS CO. JOHN DAY OR 97845	W		225.00	120.0	7.0	01/24/1970	01/26/1970	SKINNER, CATHERINE SKINNER & SONS	√		√	
GRAN_399	13.00S-31.00E-21			AASNESS, JOHN C WEST HWY JOHN DAY OR 97845	W		73.00	3.0	30.0	07/24/1963	08/02/1963	DAVIS, RUDD W	√		√	
GRAN_400	13.00S-31.00E-21			FERGERSON, FLOYD R JOHN DAY OR 97845	W		109.00	20.0	15.0	04/12/1961	04/14/1961	DAVIS, RUDD W	√		√	
GRAN_401	13.00S-31.00E-21 SE-SE			JOHN DAY VALLEY PACKING WEST HWY JOHN DAY OR 97845	W	21.00	110.00	18.0	1.0	01/04/1977	03/07/1977	JOBE, BOND NORTHWEST DRILLING	√		√	
GRAN_402	13.00S-31.00E-21 SW-NE			SHOWN, P N JOHN DAY OR 97845	W		455.00	85.0	20.0	07/10/1968	07/23/1968	SKINNER, CATHERINE SKINNER & SONS	√		√	
GRAN_403	13.00S-31.00E-21 SW-SW			MOUNTAIN VIEW COUNTRY CLUB JOHN DAY OR 97845	W		10.00	4.0	1000.0	10/15/1953	07/25/1957		√		√	
GRAN_404	13.00S-31.00E-21 SE-SW			SCOTTS, DON JOHN DAY OR 97845	W		69.00	28.0	12.0	10/10/1961	10/30/1961	DAVIS, RUDD W	√			
GRAN_405	13.00S-31.00E-21 SE-SW			WELLS, JOE JOHN DAY OR 97845	W		85.00	30.0	15.0	08/05/1957	08/13/1957	STOOKSBERRY, RUSSELL	√		√	
GRAN_406	13.00S-31.00E-21 SE-SW			SCOTT, KEN JOHN DAY OR 97845	W		0.00		0.0	10/06/1961	10/30/1961	DAVIS, RUDD W	√	√	√	
GRAN_407	13.00S-31.00E-21 SE-SE			HOLLAND, E JOHN DAY OR 97845	W		100.00	20.0	3.0	04/30/1968	07/23/1968	SKINNER, CATHERINE SKINNER & SONS	√		√	
GRAN_10	13.00S-31.00E-21 SE-SW			ROBINSON, DAVE	W	145.00	200.00	100.0	1.0	09/06/1988	09/06/1988	JOBE, BOND	√		√	
GRAN_18	13.00S-31.00E-21 SW-SW			GAIB, KENNETH	W	49.00	60.00	28.0	23.0	03/23/1990	08/31/1990	JOBE, BOND	√		√	
GRAN_50462	13.00S-31.00E-21 NW-SW	501		HENDRIX, SARA JANE	W		330.00	10.0	2.0	08/26/2001	09/07/2001	NEAL, JAMES W J & W NEAL COMPANY	107397	52191	√	√
GRAN_50488	13.00S-31.00E-21 NW-SW	501	27881 LOWER YARD RD	HENDREX, SIM	W	6.00	150.00		0.0	10/18/2001	11/05/2001	NEAL, JAMES W J & W NEAL COMPANY	107404	52196	√	√
GRAN_50577	13.00S-31.00E-21 SW-SW			OREGON DEPARTMENT OF TRANSPORTATION 3012 ISLAND AVE LA GRANDE OR 97850	G		0.00			09/19/2002	01/21/2003		√	√		

GRAN_50579	13.00S-31.00E-21 SW-SW				OREGON DEPARTMENT OF TRANSPORTATION 3012 ISLAND AVE LA GRANDE OR 97850	G		0.00	35.0		09/19/2002	01/21/2003			√	√
GRAN_50581	13.00S-31.00E-21 SW-SW				OREGON DEPARTMENT OF TRANSPORTATION 3012 ISLAND AVE LA GRANDE OR 97850	G		0.00			09/19/2002	01/21/2003			√	√
GRAN_50582	13.00S-31.00E-21 SW-SW				OREGON DEPARTMENT OF TRANSPORTATION 3012 ISLAND AVE LA GRANDE OR 97850	G		0.00			09/19/2002	01/21/2003			√	√
GRAN_51028	13.00S-31.00E-21 NE-SW	206	60339 WESTHIGHWAY 26	OCHOCO LUMBER	MALHEUR LUMBER 60339 WEST HIGHWAY 26 LOHN DAY OR 97845	G		35.00			02/17/2010	04/06/2010			√	√

[Download Data](#)

[Return to Well Log Query](#)

Well Log Query Results

Township: 13 S, Range: 31 E, Sections: 22

Well ID	Section	Owner	Acres	Depth	Completion Date	Drilling Date	Driller	Production	Notes
GRAN 321	13.00S-31.00E-22 NW-NW	MURPHEY, DAVID PO BOX 507 JOHN DAY OR 97845	72.00	80.00	30.0	36.0	08/19/1992	09/17/1992	RALEY, GARY M 18166
GRAN 408	13.00S-31.00E-22 SW-SE	WILCOX, WILLIAM R RT 1 BOX 500 JOHN DAY OR 97845	42.00	180.00	34.0	5.0	05/18/1981	06/16/1982	WILCOX, WILLIAM R
GRAN 409	13.00S-31.00E-22 SW-SE	WILCOX, WILLIAM RT 1 BOX 500 JOHN DAY OR 97845		180.00	34.0	5.0	08/15/1981	08/28/1981	ERICKSON, PAUL A
GRAN 410	13.00S-31.00E-22 SW-SE	WILCOX, WILLIAM RT 1 BOX 500 JOHN DAY OR 97845	28.00	145.00	24.0	3.0	06/05/1981	07/01/1981	ERICKSON, PAUL A
GRAN 411	13.00S-31.00E-22 SW-SW	KENDIG, KEN PO BOX 320 JOHN DAY OR 97845	380.00	0.00	0.0	0.0	03/31/1981	04/16/1981	PILCHER, ROBERT PILCHER WELL DRILLING
GRAN 412	13.00S-31.00E-22 -	KINDIG, KENNETH PO BOX 220 JOHN DAY OR 97845	110.00	122.00	5.0	100.0	12/19/1980	03/09/1981	MAPHET, DARRELL MAPHET WELL DRILLING
GRAN 413	13.00S-31.00E-22 -	KENDIG, KEN PO BOX 320 JOHN DAY OR 97845		230.00			10/27/1980	11/18/1980	MAPHET, DARRELL MAPHET WELL DRILLING
GRAN 414	13.00S-31.00E-22 SE-NW	PATTERSON, BILL JOHN DAY OR 97845	40.00	80.00	35.0	35.0	10/17/1980	10/30/1980	JOBE, BOND JOBE DRILLING INC.
GRAN 415	13.00S-31.00E-22 -	HASE, LESLIE JOHN DAY OR 97845		232.00	26.0	10.0	09/12/1961	10/02/1961	DAVIS, RUDD W
GRAN 416	13.00S-31.00E-22 -	HOOE, LESLIE JOHN DAY OR 97845		232.00	33.0	10.0	09/07/1961	10/02/1961	DAVIS, RUDD W
GRAN 417	13.00S-31.00E-22 NW-NW	HINES LUMBER CO. JOHN DAY OR 97845	16.00	265.00	9.0	7.0	11/16/1973	04/09/1974	HARTLING, HAROLD E
GRAN 418	13.00S-31.00E-22 SW-SE	KRASOWSKI, STANLEY CANYON CITY OR 97820	280.00	320.00	203.0	20.0	07/19/1975	09/08/1975	JOBE, BOND NORTHWEST DRILLING
GRAN 419	13.00S-31.00E-22 SE-SW	WAHLFORD, NORENE CITY OF JOHN DAY JOHN DAY OR 97845	10.00	320.00		1.0	06/06/1978	06/19/1978	JOBE, BOND JOBE DRILLING INC.
GRAN 420	13.00S-31.00E-22 SW-SE	KRASOWSKI, STANLEY CANYON CITY OR 97820	178.00	280.00		20.0	07/19/1975	08/15/1975	JOBE, BOND NORTHWEST DRILLING
GRAN 421	13.00S-31.00E-22 SW-SE	KRASOWSKI, STANLEY CANYON CITY OR 97820	280.00	320.00	203.0	20.0	07/19/1975	08/15/1975	JOBE, BOND NORTHWEST DRILLING
GRAN 422	13.00S-31.00E-22 SW-SW	HURLBURT, HARLAN JOHN DAY OR 97845	23.00	125.00	10.5	9.0	10/12/1971	02/28/1972	HYSELL, GLEN G HYSELL PUMP & DRILLING
GRAN 423	13.00S-31.00E-22 SW-SW	WELDIN, RAY JOHN DAY OR 97845		85.00	40.0	15.0	05/20/1971	06/09/1971	SKINNER, CATHERINE SKINNER & SONS
GRAN 424	13.00S-31.00E-22 SW-SE	KRASOWSKI, STANLEY CANYON CITY OR 97820	178.00	280.00		20.0	07/06/1975	09/08/1975	JOBE, BOND NORTHWEST DRILLING
GRAN 425	13.00S-31.00E-22 NE-SE	MID COUNTY CEMETARY JOHN DAY OR 97845	100.00	200.00	90.0	50.0	07/07/1979	10/02/1979	JOBE, BOND JOBE DRILLING INC.

Well Log Query Results

Township: 13 S, Range: 31 E, Sections: 25

Well ID	Section	Acres	Owner	Driller	Depth (ft)	Completion Date	Drilling Date	Well Type	Water	Gas	Oil	Other	Notes
GRAN_436	13.00S-31.00E-25 SE-NE		SPAULDING, L CLAIR 208 NW CANTON JOHN DAY OR 97845		W	28.00	36.00	22.0	15.0	08/15/1975	09/08/1975	JOBE, BOND NORTHWEST DRILLING	√
GRAN_438	13.00S-31.00E-25 SE-NE		SPAULDING, L CLAIR 208 NW CANTON JOHN DAY OR 97845		W	0.00	0.00	0.0			09/08/1975	JOBE, BOND NORTHWEST DRILLING	√
GRAN_13	13.00S-31.00E-25 NE-NW		CHURCH OF LATTER DAY SAINTS E HWY 26 JOHN DAY OR 97845	√	W	100.00	220.00	100.0	5.0	05/11/1990	01/06/1999	JOBE, BOND JOBE DRILLING	√
GRAN_50407	13.00S-31.00E-25 NW-NE	200	JACKSON OIL CO. 131 N WASHINGTON CANYON CITY OR 97820		M	15.00	20.00	15.0		12/02/2000	01/19/2001	BURROWS, JOSH ENVIRONMENTAL WEST EXPLORATIONS	136537 36710 √

[Download Data](#)
[Return to Well Log Query](#)

Well Log Query Results

Township: 13 S, Range: 31 E, Sections: 27

Well ID	Section	Range	Township	Owner	Address	Direction	Depth	Flow	Pressure	Temperature	Start Date	End Date	Company	Production	Notes	
GRAN_445	13.00S-31.00E-27 NW-NE			PHILLIPS, MR ROBERT	GRUBSTAKE MINING CO. MAIN ST JOHN DAY OR 97845	W	330.00	270.0	18.0	07/24/1985	08/26/1985		LANDWEER, THOMAS L BLUE MT WELL DRILLING		√	
GRAN_446	13.00S-31.00E-27 NE-SW		WEST BENCH	PHILLIPS, MR BOB	PHILLIPS, MRS BOB 1304 MAIN ST CANYON CITY OR 97820	W	330.00	345.00	240.0	22.0	04/14/1984	05/04/1984	LANDWEER, THOMAS L BLUE MT WELL DRILLING		√	
GRAN_447	13.00S-31.00E-27 NW-NE			MATTERSON, RUSTY PO BOX 636 JOHN DAY OR 97845		W	278.00	344.00	276.0	9.0	12/23/1983	04/02/1984	ERICKSON, PAUL A		√	
GRAN_448	13.00S-31.00E-27 SW-NW			BOGEN, JOHN 257 DAYTON JOHN DAY OR 97845		W	0.00				04/10/1980	06/04/1981	JOBE, BOND JOBE DRILLING INC.	√	√	
GRAN_449	13.00S-31.00E-27 NW-NE			RODGERS, JERRY JOHN DAY OR 97845		W	435.00	460.00	370.0	25.0	03/30/1981	04/13/1981	JOBE, BOND JOBE DRILLING INC.		√	
GRAN_450	13.00S-31.00E-27 NW-NW			DUNN, GENE JOHN DAY OR 97845		W	350.00	360.00	175.0	15.0	07/28/1980	08/04/1980	JOBE, BOND JOBE DRILLING INC.		√	
GRAN_451	13.00S-31.00E-27 NE-NW			CUTSFORTH, THOMAS PO BOX 22 SANDY OR 97055		W	410.00	465.00	381.0	10.0	01/16/1980	03/12/1980	LANDWEER, TOM BLUE MT WELL DRILLING		√	
GRAN_452	13.00S-31.00E-27 NW-NW			MARR, GENE OR		W	0.00				06/11/1980	06/17/1980	JOBE, BOND JOBE DRILLING INC.	√	√	
GRAN_453	13.00S-31.00E-27 NW-NW			MARR, GENE 121 SW CANTON JOHN DAY OR 97845		W	0.00				05/23/1980	06/17/1980	JOBE, BOND JOBE DRILLING INC.	√	√	
GRAN_454	13.00S-31.00E-27 NW-NW			MARR, GENE A JOHN DAY OR 97845		W	375.00	400.00	280.0	20.0	07/02/1980	07/16/1980	JOBE, BOND JOBE DRILLING INC.		√	
GRAN_455	13.00S-31.00E-27 NW-NE			HUTCHINS, NICK 490 E MAIN APT 6 JOHN DAY OR 97845		W	74.00	315.00	261.0	35.0	08/11/1978	09/07/1978	LANDWEER, TOM BLUE MT WELL DRILLING		√	
GRAN_456	13.00S-31.00E-27 NW-NW			MANES, DON 1665 S LAFAYETTE ALBANY OR 97321		W	200.00	280.00	190.0	30.0	11/22/1978	12/01/1978	JOBE, BOND JOBE DRILLING INC.		√	
GRAN_50147	13.00S-31.00E-27 NE-NW	400	GRANT COUNTY RD 74B	ROOKSTOOL, ROD BOX 668 CANYON CITY OR 97820		W	220.00	180.00	132.0	15.0	02/03/1998	02/23/1998	NEAL, JAMES J & W NEAL COMPANY	91084	19341	√
GRAN_50146	13.00S-31.00E-27 NE-NW	400	GRANT COUNTY RD 74B	ROOKSTOOL, ROD PO BOX 668 CANYON CITY OR 97820		W					12/24/1997	02/23/1998	NEAL, JAMES J & W NEAL COMPANY	83377		√
GRAN_50825	13.00S-31.00E-27 SW-SW	1204	CHEMNEY GULCH RD W BENCH	JENSEN, MATTHEW PO BOX 462 PILOT ROCK OR 97868		W	84.00	110.00	48.0	24.0	06/30/2006	07/17/2006	NEAL, JAMES W JWN COMPANY INC	184844	85003	√

[Download Data](#)[Return to Well Log Query](#)

Well Log Query Results

Township: 13 S, Range: 31 E, Sections: 28

Well ID	Section	Range	Township	Owner	Acres	Depth	Flow	Pressure	Completion	Production	Drilling Date	Production Date	Driller	Flow	Pressure	Completion	Production
GRAN_44	13.00S-31.00E-28 SE-NW			YOUNG, DON HCR 56 BOX 816 JOHN DAY OR			W	0.00			11/13/1990	12/14/1990	MATHERS, STEVE	22472	√	√	√
GRAN_457	13.00S-31.00E-28 NW-SE			JOHNSON, DAVID L WEST BENCH JOHN DAY OR 97845			W	40.00	60.00	15.0	5.0	10/12/1985	10/24/1985	JOBE, BOND		√	√
GRAN_458	13.00S-31.00E-28 NE-NE			GEINGER, IVAN JOHN DAY OR 97845			W	130.00	135.00	80.0	15.0	06/18/1985	07/08/1985	JOBE, BOND		√	√
GRAN_459	13.00S-31.00E-28 NE-NE			WELDIN, RAY W HWY JOHN DAY OR 97845			W	110.00	130.00	90.0	20.0	04/05/1985	04/29/1985	JOBE, BOND		√	√
GRAN_460	13.00S-31.00E-28 NE-NE			WELDIN, RAY W HWY JOHN DAY OR 97845			W	110.00	132.00	80.0	20.0	07/25/1984	08/08/1984	JOBE, BOND JOBE DRILLING		√	√
GRAN_461	13.00S-31.00E-28 NE-NE			WINFREYS, NICK JOHN DAY OR 97845			W	235.00	275.00	241.0	10.0	05/26/1984	06/14/1984	JOBE, BOND JOBE DRILLING		√	√
GRAN_462	13.00S-31.00E-28 SE-NW			MITCHELL, MAURICE JOHN DAY OR 97845	√		W	260.00	360.00	240.0		11/03/1982	12/10/1982	JOBE, BOND JOBE DRILLING		√	√
GRAN_463	13.00S-31.00E-28 NW-NE			FOX, MIKE PRAIRIE CITY OR 97869			W	250.00	260.00	160.0	10.0	03/24/1980	04/07/1980	JOBE, BOND JOBE DRILLING INC.		√	√
GRAN_464	13.00S-31.00E-28 SW-NE			BLACK, JIM JOHN DAY OR 97845			W	260.00	290.00	190.0	15.0	11/29/1979	12/17/1979	JOBE, BOND JOBE DRILLING INC.		√	√
GRAN_465	13.00S-31.00E-28 SW-NE			CALDWELL, KEITH GENERAL DELIVERY JOHN DAY OR 97845			W	290.00	363.00	210.0	10.0	08/05/1975	09/08/1975	JOBE, BOND NORTHWEST DRILLING		√	√
GRAN_466	13.00S-31.00E-28 SW-NE			CALDWELL, KEITH GENERAL DELIVERY JOHN DAY OR 97845			W	0.00	0.00	0.0		09/08/1975		JOBE, BOND NORTHWEST DRILLING		√	√
GRAN_467	13.00S-31.00E-28 NE-NE			WRIGHT, DON PO BOX 521 BURNS OR 97720			W	280.00	300.00	265.0	7.0	08/30/1978	09/07/1978	LANDWEER, TOM BLUE MT WELL DRILLING		√	√
GRAN_468	13.00S-31.00E-28 NE-NE				MT VIEW GOLF COURSE; SHOWN, P N JOHN DAY OR 97845		W		340.00	78.0	30.0	05/04/1969	06/10/1969	SKINNER, CATHERINE SKINNER & SONS		√	√
GRAN_469	13.00S-31.00E-28 NW-SE			TOLMAN, DAVID M WEST BENCH JOHN DAY OR 97845			W	32.00	55.00	25.0	20.0	06/19/1979	07/18/1979	TOLMAN, DAVID M		√	√
GRAN_500	13.00S-31.00E-28 NW-NE			BLACK, JIM R 429 W MAIN JOHN DAY OR 97845			W	0.00	0.00	0.0		07/30/1980		BLACK, JIM R		√	√
GRAN_501	13.00S-31.00E-28 SE-NE			WILDMAN, DICK JOHN DAY OR 97845			W	80.00	125.00	85.0	10.0	08/03/1978	09/07/1978	LANDWEER, TOM BLUE MT WELL DRILLING		√	√
GRAN_502	13.00S-31.00E-28 SW-NW			WELDEN, RAY JOHN DAY OR 97845			W	180.00	200.00	140.0	20.0	12/12/1978	02/06/1979	JOBE, BOND JOBE DRILLING INC.		√	√
GRAN_503	13.00S-31.00E-28 NE-SW			WOODCOCK, DEL PRAIRIE CITY OR 97869			W	180.00	200.00	137.0	45.0	11/09/1978	12/01/1978	JOBE, BOND JOBE DRILLING INC.		√	√
GRAN_693	13.00S-31.00E-28 NW-NW	1601	COUNTY RD 74	YOUNG, DON E HCR 56 BOX 816 JOHN DAY OR 97845			W		305.00	177.0	0.0	12/30/1993	01/18/1994	MARCIEL, JOHN	48698	√	√

GRAN_695	13.00S-31.00E-28 SE-NW	1601	COUNTY RD 74	YOUNG, DON E HCR 56 BOX 816 JOHN DAY OR 97845	
GRAN_830	13.00S-31.00E-28 SW-NE	1602	COUNTY RD 74	YOUNG, DONALD E HCR 56 BOX 816 JOHN DAY OR 97845	
GRAN_831	13.00S-31.00E-28 SE-NW	1600	COUNTY RD 74	YOUNG, DONALD E HCR 56 BOX 816 JOHN DAY OR 97845	
GRAN_833	13.00S-31.00E-28 SE-NW	1600		YOUNG, DON E HCR 56 BOX 816 JOHN DAY OR 97845	
GRAN_859	13.00S-31.00E-28 NW-NE	1000	W BENCH	ABBOTT, KENNETH D PO BOX 184 MT VERNON OR 97865	
GRAN_862	13.00S-31.00E-28 NW-NE	1000	W BENCH COUNTY RD 74- 47B	ABBOTT, KENNETH D PO BOX 184 MT VERNON OR 97865	
GRAN_50022	13.00S-31.00E-28 SW-NE	1700	WEST BENCH RD	COYNER, DAVID C PO BOX 694 JOHN DAY OR 97845	
GRAN_50023	13.00S-31.00E-28 SW-NE	1700	WEST BENCH RD	COYNER, DAVID C PO BOX 694 JOHN DAY OR 97845	
GRAN_50084	13.00S-31.00E-28 SE-NW	1605		WOODCOCK, LANCE PO BOX 156 JOHN DAY OR 97845	
GRAN_50172	13.00S-31.00E-28 SW-NE	700	COUNTY RD 74; 1 MI S	NEAL, JEFF HCR 56 BOX 796 JOHN DAY OR 97845	
GRAN_50264	13.00S-31.00E-28 SE-NE	402	COUNTY RD 74; W BENCH OF GRANT CO 9	CHURCH, FLOYD	CHURCH, CHUCK 636 HILLCREST DR JOHN DAY OR 97845
GRAN_50416	13.00S-31.00E-28 SW-NE	1703	GCR 74C	CHURCH, CHUCK 110 WASHINGTON ST PRAIRIE CITY OR 97869	
GRAN_50417	13.00S-31.00E-28 SW-NE	1703	GRANT COUNTY RD 74C	CHURCH, CHUCK 110 WASHINGTON ST PRAIRIE CITY OR 97869	
GRAN_50703	13.00S-31.00E-28 SE-SW	1900	AT S END OF BUMPY RD; 0.25 MI	JOHNSON, GUY	JOHNSON, ANGIE PO BOX 754 JOHN DAY OR 97845
GRAN_50704	13.00S-31.00E-28 SE-SW	1900	0.25 MI S ON BUMPY RD; GATE ON LEFT	JOHNSON, GUY	JOHNSON, ANGIE PO BOX 754 JOHN DAY OR 97845
GRAN_50811	13.00S-31.00E-28 SW-SE	500	26825 RNR RIDGE RD	REX, ROBERT PO BOX 832 JOHN DAY OR 97845	
GRAN_50812	13.00S-31.00E-28 SW-SE	500	26825 RNR RD	REX, ROBERT PO BOX 832 JOHN DAY OR 97845	

W		285.00		0.0	12/20/1993	01/18/1994	MARCIEL, JOHN	48706		√	√
W		250.00			06/29/1994	08/01/1994	MARCEIL, JOHN	48718		√	√
W		305.00			06/30/1994	08/01/1994	MARCEIL, JOHN	61718		√	√
W	80.00	110.00	86.0	12.0	07/07/1994	08/17/1994	MARCIEL, JOHN	61719		√	√
W	135.00	115.00	115.0	1.0	04/12/1995	04/17/1995	MARCIEL, JOHN	48739		√	√
W		313.00			04/27/1995	05/11/1995	MARCIEL, JOHN	48741		√	√
W	122.00	250.00	25.0	1.0	04/05/1996	04/11/1996	MARCIEL, JOHN JOHN MARCIEL	83372	23642	√	√
W	125.00	190.00	13.0	0.0	04/04/1996	04/11/1996	MARCIEL, JOHN JOHN MARCIEL	83371	23643	√	√
W	157.00	100.00	100.0	1.0	11/12/1996	11/21/1996	RILEY, TIMOTHY K WESTERN DRILLING CO.	83819	3169	√	√
W	85.00	120.00	53.0		07/01/1998	08/24/1998	MARCIEL, JOHN JOHN MARCIEL	89489	23931	√	√
W		342.00			09/26/1999	10/06/1999	DAVIS, FRANCIS RAY DAVIS & SON DRILLING	119562	27357	√	√
W	127.00	250.00	16.0	2.0	01/06/2001	02/06/2001	NEAL, JAMES W J & W NEAL COMPANY	107393	23642	√	√
W	47.00	130.00	22.0	11.0	01/09/2001	02/06/2001	NEAL, JAMES W J & W NEAL COMPANY	107392	23643	√	√
W		0.00	0.0		10/26/2003	02/05/2004	NEAL, JAMES W J & W NEAL COMPANY	151973		√	√
W	248.00	0.00	152.0	1.0	11/16/2003	02/05/2004	NEAL, JAMES W J & W NEAL COMPANY	151976		√	√
W	13.00	60.00	13.0	60.0	08/09/2005	03/03/2006	NEAL, JAMES W JWN COMPANY INC	169200	67153	√	√
W	37.00	150.00	37.0	12.0	08/11/2005	03/03/2006	NEAL, JAMES W JWN COMPANY INC	169199	67168	√	√

[Download Data](#)
[Return to Well Log Query](#)

Well Log Query Results

Township: 13 S, Range: 31 E, Sections: 29

Well ID	Section	Range	Township	Owner	Operator	Direction	Depth	Flow	Pressure	Temperature	Start Date	End Date	Driller	Production	Notes
GRAN_48	13.00S-31.00E-29 NE-NW			RICHAN, W E	RICHAN, RUTH E HCR BOX 449 JOHN DAY OR 97845	W	100.00	21.0	5.0	02/20/1991	02/25/1991	RALEY, GARY M	18151	√	√
GRAN_504	13.00S-31.00E-29 SW-NE			SCHOLT, BILL 560 MAIN WEST JOHN DAY OR 97845		W	210.00	260.00	150.0	3.0	09/05/1984	09/27/1984	JOBE, BOND JOBE DRILLING	√	√
GRAN_505	13.00S-31.00E-29 SW-NE			MCCOMBS, MR RICHARD	MCCOMBS, MRS RICHARD 18 MOBILE CITY JOHN DAY OR 97845	W	260.00		0.0	08/18/1983	09/21/1983	LANDWEER, TOM		√	√
GRAN_506	13.00S-31.00E-29 NE-NE			WELDON, RAY W HWY JOHN DAY OR 97845		W	75.00	75.00	55.0	15.0	09/17/1983	10/07/1983	JOBE, BOND JOBE DRILLING	√	√
GRAN_507	13.00S-31.00E-29 SW-NE			MCCOMBS, MR RICHARD	MCCOMBS, MRS RICHARD 18 MOBILE CITY JOHN DAY OR 97845	W	190.00	295.00	130.0	9.0	08/30/1983	09/21/1983	LANDWEER, TOM	√	√
GRAN_508	13.00S-31.00E-29 NW-NE			JOHNS, DAVE RT 1 BOX 440 JOHN DAY OR 97845		W	142.00	195.00	70.0	7.0	03/08/1983	03/24/1983	JOBE, BOND JOBE DRILLING	√	√
GRAN_509	13.00S-31.00E-29 NW-NW		W HWY 26	BERRY, MRS HOMER WEST HWY JOHN DAY OR 97845		W	30.00	40.00	25.0	5.0	04/28/1982	05/17/1982	JOBE, BOND JOBE DRILLING	√	√
GRAN_510	13.00S-31.00E-29 SE-NE			THOMASON, JAMES JOHN DAY OR 97845		W	250.00	260.00	160.0	15.0	04/27/1983	05/26/1983	JOBE, BOND JOBE DRILLING	√	√
GRAN_511	13.00S-31.00E-29 SE-NE			JOBE, BOND PO BOX 655 PRAIRIE CITY OR 97869		W	210.00	150.0	5.0	05/12/1983	05/26/1983	JOBE, BOND JOBE DRILLING	√	√	
GRAN_512	13.00S-31.00E-29 NE-NE	2200		STOWALL, MR JAMES	STOWALL, MRS JAMES JOHN DAY OR 97845	W	180.00	275.00	160.0	10.0	08/20/1981	08/27/1981	LANDWEER, TOM BLUE MT WELL DRILLING	√	√
GRAN_513	13.00S-31.00E-29 NW-NE			MORRISON, CECIL JOHN DAY OR 97845		W	150.00	187.00	140.0	15.0	05/23/1980	06/17/1980	JOBE, BOND JOBE DRILLING INC.	√	√
GRAN_514	13.00S-31.00E-29 NE-NE			WHITE, PETE JOHN DAY OR 97845		W	515.00	500.00	0.0	20.0	09/19/1979	10/02/1979	JOBE, BOND JOBE DRILLING INC.	√	√
GRAN_515	13.00S-31.00E-29 NE-NE			WHITE, MICHAEL PETE JOHN DAY OR 97845		W	150.00	500.00		25.0	09/17/1978	11/20/1978	JOBE, BOND JOBE DRILLING INC.	√	√
GRAN_516	13.00S-31.00E-29 NE-NE			SHANK, FRED JOHN DAY OR 97845		W	37.00	80.00	30.0	10.0	04/09/1980	04/23/1980	JOBE, BOND JOBE DRILLING INC.	√	√
GRAN_517	13.00S-31.00E-29 SE-NE			STOVALL, MR JIM	STOVALL, MRS JIM PO BOX 648 JOHN DAY OR 97845	W	122.00	146.00	93.0	4.0	12/15/1979	05/19/1980	LANDWEER, TOM BLUE MT WELL DRILLING	√	√
GRAN_518	13.00S-31.00E-29 SE-NE			STOVALL, MR JIM	STOVALL, MRS JIM PO BOX 648 JOHN DAY OR 97845	W	106.00	290.00	100.0	7.0	12/20/1979	05/19/1980	LANDWEER, TOM BLUE MT WELL DRILLING	√	√
GRAN_519	13.00S-31.00E-29 SE-NE			STOVALL, MR JIM	STOVALL, MRS JIM PO BOX 648 JOHN DAY OR 97845	W	290.00	325.00	179.0	10.0	04/25/1980	05/19/1980	LANDWEER, TOM BLUE MT WELL DRILLING	√	√
GRAN_520	13.00S-31.00E-29 NE-NE			MORISON, CECIL JOHN DAY OR 97845		W	170.00	200.00	90.0	15.0	03/14/1978	03/20/1978	JOBE, BOND NORTHWEST DRILLING	√	√
GRAN_521	13.00S-31.00E-29 NW-NE			KRASOWSKI, STAN CANYON CITY OR 97820		W	110.00	120.00	75.0	9.0	02/21/1977	07/12/1977	JOBE, BOND NORTHWEST DRILLING	√	√

GRAN_522	13.00S-31.00E-29 SW-NE			HELDT, DAN JOHN DAY OR 97845			W		0.00				03/20/1978	03/29/1978	JOBE, BOND NORTHWEST DRILLING			√	√	√
GRAN_523	13.00S-31.00E-29 SW-NE			HELDT, DAN JOHN DAY OR 97845			W		0.00				03/22/1978	03/29/1978	JOBE, BOND NORTHWEST DRILLING			√	√	√
GRAN_524	13.00S-31.00E-29 SE-NW			OMALLEY, MICHAEL BOX 104 JOHN DAY OR 97845			W	170.00	350.00	160.0	5.0		01/11/1978	02/10/1978	JOBE, BOND NORTHWEST DRILLING			√		√
GRAN_525	13.00S-31.00E-29 NE-NE			WELLBROCK, RUDY 14232 WEJACUM LANE SE TURNER OR 97392			W	290.00	360.00	60.0	6.0		08/08/1978	08/24/1978	JOBE, BOND JOBE DRILLING INC.			√		√
GRAN_526	13.00S-31.00E-29 NW-SE			HATFIELD, MARVIN JOHN DAY OR 97845			W		0.00				02/02/1977	03/07/1977	JOBE, BOND NORTHWEST DRILLING			√	√	
GRAN_527	13.00S-31.00E-29 NW-SE			HATFIELD, MARVIN WEST HWY JOHN DAY OR 97845			W	21.00	160.00	14.0	10.0		01/10/1977	03/07/1977	JOBE, BOND NORTHWEST DRILLING			√		
GRAN_620	13.00S-31.00E-29 SW-NW			HIGGINS, MIKE JOHN DAY OR 97845			W	75.00	100.00	50.0	12.0		07/26/1977	08/02/1977	JOBE, BOND NORTHWEST DRILLING			√		√
GRAN_676	13.00S-31.00E-29 NW-SE	2100	COUNTY RD 85	HALL SR, WALTER 1735 DEARBORN NE SALEM OR 97303			W	140.00	460.00	130.0	1.0		09/03/1993	09/15/1993	CLAUSON, CURT	54984		√		√
GRAN_681	13.00S-31.00E-29 NW-NE	2400	COUNTY RD 85 & TRAFTON AVE	MCCOMBS, RICHARD D PO BOX 509 JOHN DAY OR 97845			W	212.00	305.00	120.0	1.0		08/20/1993	09/16/1993	MARCIEL, JOHN	48675		√		√
GRAN_690	13.00S-31.00E-29 NE-NE	700		LOUND, JAMES R 1147 HIATT ST LEBANON OR 97355			W	147.00	160.00	95.0	24.0		12/09/1993	12/27/1993	MARCIEL, JOHN	48692		√		√
GRAN_874	13.00S-31.00E-29 NE-SW	600	COUNTY RD 76	STEVENSON, A H	STEVENSON, JOYCE HCR 56 BOX 455 JOHN DAY OR 97845		W	82.00	250.00	220.0	0.0		07/23/1995	07/26/1995	MARCIEL, JOHN	48726		√		√
GRAN_50007	13.00S-31.00E-29 NE-NW	300	COUNTY RD 76	JOHNS, DAVID	JOHNS, JULIE HCR 56 BOX 440 JOHN DAY OR 97845		W	130.00	290.00	300.0	0.0		10/14/1995	01/08/1996	MARCIEL, JOHN JOHN MARCIEL	83360		√		√
GRAN_8741	13.00S-31.00E-29 NE-SW	600000000		STEVENSON, A H	STEVENSON, JOYCE		W	0.00	250.00	220.0			07/18/1995	07/26/1995	MARCIEL, JOHN	48726		√		√
GRAN_50051	13.00S-31.00E-29 NE-SE	2100	COUNTY RD 85	HALL SR, WALTER HCR 56 BOX 383 JOHN DAY OR 97845			W		277.00	140.0			09/28/1995	11/15/1995	RILEY, TIMOTHY K WESTERN DRILLING CO.	76194		√		√
GRAN_50218	13.00S-31.00E-29 SW-SE	700		UPDEGRAVE, JERRY PO BOX 52 JOHN DAY OR 97845			W	220.00	300.00	215.0	11.0		11/25/1998	12/14/1998	LAND OWNER LAND OWNER	91100 28600		√		√
GRAN_50281	13.00S-31.00E-29 SE-NE	1400	COUNTY RD 85 HCR 56	CHRISTENSEN, RICK 567 NW 7TH ST PRINEVILLE OR 97754			W	272.00	390.00	145.0	5.0		10/18/1999	11/15/1999	CUMMINGS, WILLIAM F CUMMINGS WELL DRILLING	128055 24910		√		√
GRAN_50282	13.00S-31.00E-29 NE-SE	2100	SAME: RD 85, JOHN DAY	HALL, WALT HCR BOX 383 PRINEVILLE OR 97754			W	330.00	394.00	225.0	16.0		10/20/1999	11/15/1999	CUMMINGS, WILLIAM F CUMMINGS WELL DRILLING	128056 24911		√		√
GRAN_50263	13.00S-31.00E-29 NE-SW	700		UPDEGRAVE, JERRY PO BOX 52 JOHN DAY OR 97845		√	W	500.00		64.0	15.0		08/30/1999	10/04/1999	LAND OWNER LAND OWNER	91104 36649		√		√
GRAN_50439	13.00S-31.00E-29 NW-NE	302	GIBSON RD	STONEMAN, LANCE	CURTIS, RAY HCR 6 BOX 423 JOHN DAY OR 97845		W	120.00	350.00	110.0	1.0		05/01/2001	05/16/2001	NEAL, JAMES W J & W NEAL COMPANY	107395 23644		√		√

[Download Data](#)

[Return to Well Log Query](#)

Well Log Query Results

Township: 13 S, Range: 31 E, Sections: 31

Well ID	Section	Range	Township	Owner	Address	Direction	Depth	Flow	Rate	Pressure	Temperature	Completion Date	Production Date	Driller	Production Volume	Notes	Other	
GRAN_239	13.00S-31.00E-31 SE-NW			BAZONA, TODD	BAZONA, JENNIE PO BOX 91 CANYON CITY OR 97820	W	156.00	58.0	15.0	04/27/1982	05/26/1982	ERICKSON, PAUL A			√	√		
GRAN_534	13.00S-31.00E-31 NE-NW			CONLEE, A D	MARYSVILLE RD JOHN DAY OR 97845	W	65.00	140.00	50.0	15.0	06/14/1978	07/12/1978	JOBE, BOND JOBE DRILLING INC.		√		√	
GRAN_535	13.00S-31.00E-31 NW-SW			BARRIETUA, PETE	MARYSVILLE RD CANYON CITY OR 97820	W	80.00	100.00	52.0	10.0	01/14/1977	02/09/1977	JOBE, BOND NORTHWEST DRILLING		√		√	
GRAN_50182	13.00S-31.00E-31 SW-NE	111	COUNTY RD 74G	TODD, CLAY	PO BOX 400 JOHN DAY OR 97845	W	123.00	132.00	81.0	13.0	09/08/1998	09/28/1998	THISSELL, KEVIN H KEVIN THISSELL	92391	12020	√		√
GRAN_50720	13.00S-31.00E-31 SW-SE	4300	LUCE CREEK RD; HWY 26	MORRIS, JOHN	60016 HWY 26 JOHN DAY OR 97845	W		0.00		0.0	06/29/2004	07/07/2004	MARCIEL, JOHN MARCIEL WELL DRILLING & PUMPS	152178		√	√	√

[Download Data](#)

[Return to Well Log Query](#)

Well Log Query Results

Township: 13 S, Range: 31 E, Sections: 33

Well ID	Section	Block	Subsection	Owner	Address	Direction	Depth	Flow	Pressure	Temperature	Completion Date	Production Date	Operator	Production	Flow	Pressure	Temperature	Completion Date	Production Date	Operator	Production
GRAN 481	13.00S-31.00E-33 NE-NE	100		GREEN, MARVIN HCR 56 BOX 13 JOHN DAY OR 97845		W	290.00	45.0	15.0	12/02/1992	12/04/1992	CLAUSON, CURT	46333		√						√
GRAN 538	13.00S-31.00E-33 SW-NE	900	W BENCH	SMITH, THOMAS	SMITH, KAREN 149 NE ELM JOHN DAY OR 97845	W	400.00	440.00	205.0	10.0	05/01/1987	07/02/1987	JOBE, BOND		√						√
GRAN 539	13.00S-31.00E-33 SE-SE			TATE, JIM W BENCH JOHN DAY OR 97845		W	130.00	50.0	30.0	06/01/1987	06/25/1987	JOBE, BOND		√							√
GRAN 540	13.00S-31.00E-33 NE-NW			AUFFORTH, CHARLES JOHN DAY OR 97845		W	28.00	208.00	80.0	1.0	08/07/1978	09/07/1978	LANDWEER, TOM BLUE MT WELL DRILLING		√						√
GRAN 541	13.00S-31.00E-33 SW-NE			HATCH, CARL GENERAL DELIVERY MT VERNON OR 97865		W	90.00	255.00	70.0	10.0	04/25/1983	05/18/1983	LANDWEER, TOM		√						√
GRAN 542	13.00S-31.00E-33 NE-NW			AUFFORTH, CHARLES PO BOX 405 JOHN DAY OR 97845		W	0.00		0.0	05/31/1979	06/21/1979	LANDWEER, TOM BLUE MT WELL DRILLING		√	√						√
GRAN 543	13.00S-31.00E-33 NE-NW			AUFFORTH, CHARLES PO BOX 405 JOHN DAY OR 97845		W	0.00		0.0	05/25/1979	05/30/1979	LANDWEER, TOM BLUE MT WELL DRILLING		√	√						√
GRAN 544	13.00S-31.00E-33 NW-NE			ERICKSON, PAUL JOHN DAY OR 97845		W	125.00			08/23/1978	09/07/1978	LANDWEER, TOM BLUE MT WELL DRILLING				√					√
GRAN 545	13.00S-31.00E-33 NW-NE			ERICKSON, PAUL W BENCH JOHN DAY OR 97845		W	130.00		0.0	08/14/1978	09/07/1978	LANDWEER, TOM BLUE MT WELL DRILLING		√							√
GRAN 546	13.00S-31.00E-33 NE-NE			ERICKSON, PAUL JOHN DAY OR 97845		W	80.00	100.00	35.0	20.0	06/23/1977	07/12/1977	JOBE, BOND NORTHWEST DRILLING		√						√
GRAN 547	13.00S-31.00E-33 NE-NE		W BENCH	ERICKSON, PAUL A PO BOX 126 JOHN DAY OR 97845		W	274.00	250.00	215.0	0.0	02/27/1982	04/07/1982	ERICKSON, PAUL A		√	√					√
GRAN 548	13.00S-31.00E-33 NW-NE	300		ERICKSON, PAUL A PO BOX 126 JOHN DAY OR 97845		W	75.00	180.00	65.0	20.0	06/02/1982	07/02/1982	ERICKSON, PAUL A		√						√
GRAN 549	13.00S-31.00E-33 NW-NE			ERICKSON, PAUL A PO BOX 126 JOHN DAY OR 97845		W	210.00	80.0	20.0	01/10/1983	02/17/1983	ERICKSON, PAUL A				√					√
GRAN 550	13.00S-31.00E-33 SE			TATE, JAMES G PO BOX 462 JOHN DAY OR 97845		W	16.00	48.00	7.5	35.0	10/31/1975	09/07/1982	TATE, J G		√						√
GRAN 551	13.00S-31.00E-33 NE-NE		WEST BENCH	ROBERTSON, EDDIE J RT 1 BOX 171 JOHN DAY OR 97845		W	0.00	110.00	21.0	5.0	08/22/1981	10/09/1981	ERICKSON, PAUL A				√				√
GRAN 552	13.00S-31.00E-33 SW-SE			JENSON, RICK WEST BENCH OR		W	104.00	160.00	90.0	15.0	10/06/1978	06/15/1979	JENSEN, RICHARD D		√						√
GRAN 553	13.00S-31.00E-33 NE-NE			ROBERTSON, EDDIE J WEST BENCH JOHN DAY OR 97845		W	25.00	67.00	15.0	12.0	09/04/1978	07/25/1979	ROBERTSON, EDDIE J		√						√
GRAN 554	13.00S-31.00E-33 -			HUNTER, LAVELL WEST BENCH RD PO BOX 573 JOHN DAY OR 97845		W	63.00	107.00	55.0	12.0	06/05/1979	07/05/1979			√						√
GRAN 555	13.00S-31.00E-33 NW-NE			ERICKSON, PAUL A WEST BENCH PO BOX 126 JOHN DAY OR 97845		W	43.00	162.00	32.0	25.0	06/02/1979	06/22/1979	ERICKSON, PAUL		√						√
GRAN 556	13.00S-31.00E-33 SW-SW			LYONS, KEITH JOHN DAY OR 97845		W	28.00	101.00	19.0	30.0	08/23/1978	05/02/1979	LYONS, KEITH A		√						√

GRAN 557	13.00S-31.00E-33 SE-NW			LEDFORD, CHUCK JOHN DAY OR 97845	
GRAN 558	13.00S-31.00E-33 SE-NW			LEDFORD, CHUCK JOHN DAY OR 97845	
GRAN 559	13.00S-31.00E-33 SE-NW			LEDFORD, CHUCK WEST BENCH OR	
GRAN 560	13.00S-31.00E-33 SW-NE			LASLEY, MYRON E JOHN DAY OR 97845	
GRAN 561	13.00S-31.00E-33 NE-NE			AUFFORTH, NORMA J BOX 431 JOHN DAY OR 97845	
GRAN 562	13.00S-31.00E-33 NW-NE			LYONS, KEITH A PO BOX 482 JOHN DAY OR 97845	
GRAN 563	13.00S-31.00E-33 NW-NE			LYONS, KEITH A PO BOX 482 JOHN DAY OR 97845	
GRAN 564	13.00S-31.00E-33 NE-NW			AUFFORTH, CHARLES JOHN DAY OR 97845	
GRAN 818	13.00S-31.00E-33 NE-NE	100		GREEN, MARVIN HCR 56 BOX 13 JOHN DAY OR 97845	
GRAN 50010	13.00S-31.00E-33 SW-NE	902	WEST BENCH	HYDE, OTTO	HYDE, JOSIE HCR 56 BOX 867 JOHN DAY OR 97845
GRAN 50021	13.00S-31.00E-33 SW-NE	902	WEST BENCH RD	WOOD, FRANK PO BOX 151 CLACKAMAS OR 97015	√
GRAN 50129	13.00S-31.00E-33 SE-NW	403		COLLIER, CHARLES HCR 56 BOX 863 JOHN DAY OR 97845	
GRAN 50160	13.00S-31.00E-33 NE-SW	503		TOWELL, BILL PO BOX 484 JOHN DAY OR 97845	
GRAN 50186	13.00S-31.00E-33 NW-SE	800	74 H ON WEST BENCH RD	GROWNEY, ROBERT 210 NW 12TH ST SHERWOOD OR 97140	
GRAN 20	13.00S-31.00E-33 SE-SE	1202			PINOEEER FEDERAL SAVINGS AND LOAN 150 W MAIN JOHN DAY OR 97845
GRAN 50221	13.00S-31.00E-33 SW-NE	903	74 H COUNTY RD	WILCOX, WILLIAM R HCR BOX 500 JOHN DAY OR 97845	
GRAN 50220	13.00S-31.00E-33 SW-NE	903	COUNTY RD 74 H; VICTORIA ESTATES	WILCOX, WILLIAM R HCR BOX 500 JOHN DAY OR 97845	
GRAN 50259	13.00S-31.00E-33 SW-NW	403	COUNTY RD 74 H WEST BENCH	PEREIRA, ARTHUR E HCR 56 BOX 863 JOHN DAY OR 97845	
GRAN 50260	13.00S-31.00E-33 SW-NW	403	COUNTY RD 74 H WEST BENCH	PEREIRA, ARTHUR E HCR 56 BOX 863 JOHN DAY OR 97845	
GRAN 50261	13.00S-31.00E-33 SW-NW	403	COUNTY RD 74 H WEST BENCH	PEREIRA, ARTHUR E HCR 56 BOX 863 JOHN DAY OR 97845	
GRAN 50262	13.00S-31.00E-33 SE-NW	403	COUNTY RD 74 H WEST BENCH	PEREIRA, ARTHUR E HCR 56 BOX 863 JOHN DAY OR 97845	
GRAN 50267	13.00S-31.00E-33 SW-NE	901	COUNTY RD 74H	DEGRANDE, PHIL	DEGRANDE, DAWN COUNTY RD 74H JOHN DAY OR 97845

W	90.00	107.00	48.0	15.0	07/26/1978	04/18/1979	LEDFORD, C			√	√
W	47.00	71.00	36.0	20.0	06/20/1978	04/18/1979	LEDFORD, C			√	√
W	85.00	140.00	85.0	15.0	08/17/1978	04/18/1979	LEDFORD, C			√	√
W	45.00	65.00	30.0	20.0	04/10/1976	05/17/1976	JOBE, BOND NORTHWEST DRILLING			√	√
W	80.00	105.00	30.0	12.0	09/01/1976	10/04/1976	JOBE, BOND NORTHWEST DRILLING			√	√
W	40.00	60.00	18.0	15.0	08/31/1977	08/18/1978	LYONS, KEITH A			√	√
W	34.00	100.00	20.0	20.0	01/31/1978	08/18/1978	LYONS, KEITH A			√	√
W	58.00	150.00	19.0	80.0	08/17/1978	09/07/1978	LANDWEER, TOM BLUE MT WELL DRILLING			√	√
W		290.00	72.0	5.0	08/28/1992	09/08/1992	CLAUSON, CURT	46333		√	√
W	40.00	275.00	270.0		01/24/1996	02/14/1996	MARCIEL, JOHN JOHN MARCIEL	83365		√	√
W	45.00	74.00	12.0	8.0	03/26/1996	04/11/1996	MARCIEL, JOHN JOHN MARCIEL	83370		√	√
W	62.00	93.00	35.0	16.0	09/26/1997	11/20/1997	MARCIEL, JOHN JOHN MARCIEL	92292 4063	√	√	√
W	57.00	75.00	4.0	35.0	04/10/1998	04/21/1998	NEAL, JAMES J & W NEAL COMPANY	91085 19345	√	√	√
W	120.00	172.00	110.0		10/13/1998	10/19/1998	MARCIEL, JOHN JOHN MARCIEL	89497 23937	√	√	√
W	45.00	130.00	40.0	22.0	03/08/1988	08/31/1990	JOBE, BOND JOBE DRILLING		94668	√	√
W	230.00	0.00	200.0	2.0	12/31/1998	01/13/1999	MARCIEL, JOHN JOHN MARCIEL	89515		√	√
W	86.00	114.00	25.0	30.0	01/06/1999	01/13/1999	MARCIEL, JOHN JOHN MARCIEL	92294 23940	√	√	√
W		130.00			08/31/1999	09/30/1999	MARCIEL, JOHN MARCIEL WELL DRILLING & PUMPS	89536 33414	√	√	√
W	150.00	250.00	150.0	1.0	08/28/1999	09/30/1999	MARCIEL, JOHN MARCIEL WELL DRILLING & PUMPS	89535 33413	√	√	√
W		170.00	0.0		08/26/1999	09/30/1999	MARCIEL, JOHN MARCIEL WELL DRILLING & PUMPS	91107 33412	√	√	√
W		140.00			08/24/1999	09/30/1999	MARCIEL, JOHN MARCIEL WELL DRILLING & PUMPS	89534 4063		√	√
W	65.00	190.00	50.0	3.0	10/23/1999	10/27/1999	DAVIS, DANIEL N DRY GULCH DRILLING	90468 21765	√	√	√

GRAN_50461	13.00S-31.00E-33 SE-NE	1000	RD 74 GCR	LANE, TOM HCR 56 BOX 862 JOHN DAY OR 97845		W	32.00	100.00	18.0	13.0	09/02/2001	09/07/2001	NEAL, JAMES W J & W NEAL COMPANY	107400	52192	√	√
GRAN_50512	13.00S-31.00E-33 SE-SE	1200	DAY SPRINGS RD	SMUCKER, LELAND 26773 CHIMNEY GULCH JOHN DAY OR 97845		W	24.00	80.00	24.0	21.0	06/10/2002	06/27/2002	NEAL, JAMES W J & W NEAL COMPANY	137363	52198	√	√
GRAN_50514	13.00S-31.00E-33 .	1200	26773 CHIMNEY GULCH RD- GRANT CTY RD 77G	SMUCKER, LELAND 26773 CHIMNEY GULCH RD JOHN DAY OR 97845		W	110.00	130.00	55.0	25.0	06/25/2002	08/01/2002	NEAL, JAMES W J & W NEAL COMPANY	137364	52200		√
GRAN_50564	13.00S-31.00E-33 SE-SE	1203	26782 DAY SPRING RD, JOHN DAY	MARSH, ERNIE PO BOX 156 WESTFALL OR 97920		W	12.00	65.00	22.0	28.0	12/18/2002	02/03/2003	NEAL, JAMES W J & W NEAL COMPANY	151959	52209	√	√
GRAN_50824	13.00S-31.00E-33 SW-SW	1200	26773 CHIMNEY GULCH RD	MASTERS, RICHARD 26773 CHIMNEY GULCH RD JOHN DAY OR 97845		W	118.00	132.00	48.0	27.0	06/24/2006	07/17/2006	NEAL, JAMES W JWN COMPANY INC	184847	85005	√	√
GRAN_51047	13.00S-31.00E-33 SE-NE	901	59726 VICTORIAN LANE JOHN DAY OR	DEGRANDE, PHILIP	DEGRANDE, DAWN 59726 VICTORIAN LANE JOHN DAY OR 97845	W	87.00	124.00	76.0	6.0	08/02/2010	01/10/2011	MARCIEL, JOHN MARCIEL WELL DRILLING & PUMPS	1010864	101592	√	√
GRAN_51048	13.00S-31.00E-33 SW-NE	903	59732 VICTORIAN LANE JOHN DAY ORE	WILCOX, WILLIAM 59732 VICTORIAN LANE JOHN DAY OR 97845		W	153.00	182.00	129.0	10.0	08/10/2010	01/10/2011	MARCIEL, JOHN MARCIEL WELL DRILLING & PUMPS	1010911	101593	√	√

[Download Data](#)

[Return to Well Log Query](#)

Well Log Query Results

Township: 13 S, Range: 31 E, Sections: 34

Well ID	Section	Block	Owner	Acres	Depth	Completion Date	Driller	Well Type	Flow Rate	Pressure	Water Level	Notes	
GRAN_46	13.00S-31.00E-34 NE-SE		BOETHIN, BILL HCR 56 BOX 910 JOHN DAY OR 97845	41.00	126.00	19.5	4.0	10/13/1990	01/09/1991	BOETHIN, WILLIAM J	23602	✓	✓
GRAN_493	13.00S-31.00E-34 SW-NE	107	COURTNEY, STEVEN J PO BOX 942 JOHN DAY OR 97845	150.00	178.00	145.0	20.0	04/05/1993	04/09/1993	RILEY, TIMOTHY K	49102	✓	✓
GRAN_565	13.00S-31.00E-34 NW-NW		WEST BENCH RD LEDBETTER, RICHARD PO 413 JOHN DAY OR 97845	84.00	118.00	41.0	8.0	03/28/1986	05/01/1986	LANDWEER, THOMAS L BLUE MT WELL DRILLING		✓	✓
GRAN_566	13.00S-31.00E-34 NE-SW		WEIGAM, MR CLAYTON RT 1 BOX 181 JOHN DAY OR 97845	70.00	104.00	49.0	40.0	01/21/1985	02/22/1985	LANDWEER, TOM BLUE MT WELL DRILLING		✓	✓
GRAN_567	13.00S-31.00E-34 SW-NE		BUSBY, MICHAEL BOX 343 JOHN DAY OR 97845		150.00		15.0	12/31/1979	06/17/1985	BARNES, BOBBY L BARNES WELL DRILLING		✓	✓
GRAN_568	13.00S-31.00E-34 NW-SE		EGGLESTON, ROY WEST BENCH JOHN DAY OR 97845	145.00	200.00	140.0	15.0	05/06/1981	05/20/1981	JOBE, BOND JOBE DRILLING		✓	✓
GRAN_569	13.00S-31.00E-34 NW-SE		CLARK, CALVIN W BENCH RD JOHN DAY OR 97845	90.00	110.00	79.0	35.0	09/13/1979	03/12/1980	LANDWEER, TOM BLUE MT WELL DRILLING	33024	✓	✓
GRAN_570	13.00S-31.00E-34 SW-SW		STANSELL, GALE JOHN DAY OR 97845	174.00	405.00	140.0	3.0	08/31/1976	10/04/1976	JOBE, BOND NORTHWEST DRILLING		✓	✓
GRAN_571	13.00S-31.00E-34 SE-SW		STANSELL, GALE JOHN DAY OR 97845	0.00	300.00			07/08/1976	07/19/1976	JOBE, BOND NORTHWEST DRILLING		✓	
GRAN_572	13.00S-31.00E-34 NE-SW		MOORE, MIKE 226 NW 2ND JOHN DAY OR 97845	135.00	160.00	120.0	25.0	06/22/1977	07/12/1977	JOBE, BOND NORTHWEST DRILLING		✓	✓
GRAN_573	13.00S-31.00E-34 SW-SE		DUKE, JAMES 660 W MAIN JOHN DAY OR 97845	362.00	365.00	162.0	20.0	12/10/1976	01/25/1977	JOBE, BOND NORTHWEST DRILLING		✓	✓
GRAN_574	13.00S-31.00E-34 SE-NW		LYONS, KEITH A PO BOX 482 JOHN DAY OR 97845	30.00	80.00	20.0	15.0	12/31/1977	08/18/1978	LYONS, KEITH A		✓	✓
GRAN_575	13.00S-31.00E-34 NE-SW		CLEMENTS, BART M MOUNT VERNON OR 97865	120.00	150.00	10.0	10.0	02/27/1976	03/15/1976	JOBE, BOND NORTHWEST DRILLING		✓	✓
GRAN_576	13.00S-31.00E-34 SE-SW		STANSELL, GALE JOHN DAY OR 97845		162.00			07/07/1976	07/19/1976	JOBE, BOND NORTHWEST DRILLING		✓	
GRAN_577	13.00S-31.00E-34 SE-SW		STANSELL, GALE JOHN DAY OR 97845	85.00	4.00			07/05/1976	07/19/1976	JOBE, BOND NORTHWEST DRILLING		✓	
GRAN_578	13.00S-31.00E-34 NE-SW		PREWITT, WILLIAM M 113 NW 7TH JOHN DAY OR 97845	22.00	100.00	18.0	3.0	07/13/1974	08/22/1975	JOBE, BOND NORTHWEST DRILLING		✓	✓
GRAN_579	13.00S-31.00E-34 NE-NE		LEDBETTER, RICHARD JOHN DAY OR 97845	46.00	100.00	22.0	20.0	06/30/1976	07/19/1976	JOBE, BOND NORTHWEST DRILLING		✓	✓

GRAN_580	13.00S-31.00E-34 SW-SW			STANSELL, GALE JOHN DAY OR 97845			W		405.00	138.0	1.0	08/27/1976	10/04/1976	JOBE, BOND NORTHWEST DRILLING				√	√
GRAN_50017	13.00S-31.00E-34 NE-NE	202	CO RD 74	LUNDBOM, VICKI J HCR56 BOX 27 JOHN DAY OR 97845			W	41.00	49.00	28.0	3.0	03/16/1996	03/21/1996	THISSELL, KEVIN H. KEVIN THISSELL	88152			√	√
GRAN_50019	13.00S-31.00E-34 NE-NE	202	COUNTY RD 74 S OF INTERSECT OF COUNTY RD 74G	LUNDBOM, VICKI J HCR 56 BOX 27 JOHN DAY OR 97845			W	124.00	138.00	23.0	10.0	04/01/1996	04/11/1996	THISSELL, KEVIN H. KEVIN THISSELL	88153			√	√
GRAN_50103	13.00S-31.00E-34 SW-NE	102	WEST BENCH RD S OF AIRPORT BOUNDARY LOT 1	CLEMENS, TIM	PEARSON, ELDON 90 W ADAMS BURNS OR 97720		W	145.00	154.00	104.0	25.0	07/03/1997	08/25/1997	MARCIEL, JOHN JOHN MARCIEL	92291	4055		√	√
GRAN_50139	13.00S-31.00E-34 SW-SW	1001	HCR 56 WEST BENCH	MARSH, ERNIE HCR 56 BOX 820 JOHN DAY OR 97845			W		0.00			12/02/1997	12/12/1997	THISSELL, KEVIN H KEVIN THISSELL	92386			√	√
GRAN_50148	13.00S-31.00E-34 SE-NW	202	GRANT COUNTY RD 74	LUNDBOM, VICKI HCR 56 BOX 195 JOHN DAY OR 97845		√	W	110.00	0.00		0.0	02/13/1998	02/23/1998	NEAL, JAMES J & W NEAL COMPANY	107375			√	√
GRAN_50155	13.00S-31.00E-34 SW-SW	1001	HCR 56, WEST BENCH 746	MARSH, ERNIE HCR 56 BOX 820 JOHN DAY OR 97845		√	W	130.00	138.00	54.0		03/27/1998	04/03/1998	THISSELL, KEVIN H KEVIN THISSELL	92387	12015		√	√
GRAN_50159	13.00S-31.00E-34 SE-NW	202	GRANT COUNTY RD 74	HOLLAND, TAMI	LUNDBOM, VICKI HCR 56 BOX 195 JOHN DAY OR 97820		W	85.00	114.00	64.0	21.0	03/08/1998	04/21/1998	NEAL, JAMES J & W NEAL COMPANY	91102	19344		√	√
GRAN_3	13.00S-31.00E-34 SW-NW	300	2 MILE W BENCH RD	LIPPERT, DWAIN PO BOX 311 CANYON CITY OR 97820			W	41.00	116.00	26.0	22.0	07/22/1990	07/25/1990	LAND OWNER LAND OWNER	22367			√	√
GRAN_50240	13.00S-31.00E-34 SW-NE	114	COUNTY RD 74; WEST BENCH RD	BRADY, GENE HCR 56 BOX 983 JOHN DAY OR 97845			W	150.00	290.00	90.0	5.0	05/05/1999	05/12/1999	MARCIEL, JOHN JOHN MARCIEL	89525	23948		√	√
GRAN_50457	13.00S-31.00E-34 NW-NE	111	WEST BENCH RD 74	THORBURN, CLIFFORD PO BOX 873 JOHN DAY OR 97845			W	87.00	121.00	57.0	60.0	07/18/2001	08/20/2001	MARCIEL, JOHN MARCIEL WELL DRILLING & PUMPS	137849	46359		√	√
GRAN_50713	13.00S-31.00E-34 SE-NW	116	GCR 74 RR 26455	RUSSELL, ROY 832 E MAIN ST JOHN DAY OR 97845			W	48.00	210.00	44.0	2.0	03/28/2004	04/29/2004	NEAL, JAMES W J & W NEAL COMPANY	151975			√	√
GRAN_50714	13.00S-31.00E-34 SE-NW	116	GC RD 74	RUSSEL, ROY 832 E MAIN ST JOHN DAY OR 97845			W	46.00	90.00	28.0	12.0	04/03/2004	04/29/2004	NEAL, JAMES W J & W NEAL COMPANY	151979	67152		√	√
GRAN_50821	13.00S-31.00E-34 SW-NE	118	W BRANCH RD, JOHN DAY	HICKMAN, STAN 3660 NE MILL CREEK RD PRINEVILLE OR 97754			W	190.00	230.00	47.0	13.0	06/19/2006	06/26/2006	NEAL, JAMES W JWN COMPANY INC	184846	85002		√	√
GRAN_50875	13.00S-31.00E-34 NW-SW	1000	ROCK PIT RD, WEST BENCH	WALTERS, LARRY PO BOX 837 PRAIRIE CITY OR 97869			W	222.00	262.00	72.0	50.0	04/23/2007	05/04/2007	MARCIEL, JOHN MARCIEL WELL DRILLING & PUMPS	190247	87508		√	√
GRAN_50952	13.00S-31.00E-34 SE-NW	600	WEST BENCH RD JOHN DAY OR	LAHUE, STEVE POBOX 1403 PRINEVILLE OR 97754			W	95.00	142.00	38.0	22.0	11/05/2008	10/28/2008	NEAL, JAMES W JWN COMPANY INC	1004289	93391		√	√

[Download Data](#)
[Return to Well Log Query](#)

GRAN_50363	13.00S-31.00E-35 NW-NE	300
GRAN_50364	13.00S-31.00E-35 NW-NE	300
GRAN_50365	13.00S-31.00E-35 NW-NE	200
GRAN_50366	13.00S-31.00E-35 NW-NE	200
GRAN_50367	13.00S-31.00E-35 NW-NE	200
GRAN_50368	13.00S-31.00E-35 NW-NE	300
GRAN_50369	13.00S-31.00E-35 NW-NE	200
GRAN_50370	13.00S-31.00E-35 NW-NE	200
GRAN_50371	13.00S-31.00E-35 NW-NE	100
GRAN_50372	13.00S-31.00E-35 NW-NE	100
GRAN_50373	13.00S-31.00E-35 NW-NE	100
GRAN_50374	13.00S-31.00E-35 NW-NE	100
GRAN_50375	13.00S-31.00E-35 NW-NE	
GRAN_50376	13.00S-31.00E-35 NW-NE	100
GRAN_50377	13.00S-31.00E-35 NW-NE	400
GRAN_50378	13.00S-31.00E-35 SW-NE	201
GRAN_50379	13.00S-31.00E-35 SW-NE	201
GRAN_50380	13.00S-31.00E-35 SW-NE	201
GRAN_50381	13.00S-31.00E-35 SW-NE	201
GRAN_50382	13.00S-31.00E-35 NW-NE	701
GRAN_50383	13.00S-31.00E-35 NW-NE	701
GRAN_50384	13.00S-31.00E-35 NW-NE	701

	JACKSON OIL 131 N WASHINGTON CANYON CITY OR 97820
	JACKSON OIL 131 N WASHINGTON CANYON CITY OR 97820
	JACKSON OIL 131 N WASHINGTON CANYON CITY OR 97820
	JACKSON OIL 131 N WASHINGTON CANYON CITY OR 97820
	JACKSON OIL 131 N WASHINGTON CANYON CITY OR 97820
	JACKSON OIL 131 N WASHINGTON CANYON CITY OR 97820
	JACKSON OIL 131 N WASHINGTON CANYON CITY OR 97820
	JACKSON OIL 131 N WASHINGTON CANYON CITY OR 97820
	JACKSON OIL 131 N WASHINGTON CANYON CITY OR 97820
	JACKSON OIL 131 N WASHINGTON CANYON CITY OR 97820
	JACKSON OIL 131 N WASHINGTON CANYON CITY OR 97820
	JACKSON OIL 131 N WASHINGTON CANYON CITY OR 97820
	JACKSON OIL 131 N WASHINGTON CANYON CITY OR 97820
	JACKSON OIL 131 N WASHINGTON CANYON CITY OR 97820
	JACKSON OIL 131 N WASHINGTON CANYON CITY OR 97820
	JACKSON OIL 131 N WASHINGTON CANYON CITY OR 97820
	JACKSON OIL 131 N WASHINGTON CANYON CITY OR 97820
	JACKSON OIL 131 N WASHINGTON CANYON CITY OR 97820
	JACKSON OIL 131 N WASHINGTON CANYON CITY OR 97820
	JACKSON OIL 131 N WASHINGTON CANYON CITY OR 97820
	JACKSON OIL 131 N WASHINGTON CANYON CITY OR 97820
	JACKSON OIL 131 N WASHINGTON CANYON CITY OR 97820
	JACKSON OIL 131 N WASHINGTON CANYON CITY OR 97820

G		0.00	12.0		12/05/2000	01/16/2001		
G		0.00	12.0		12/05/2000	01/16/2001		
G		0.00	12.0		12/05/2000	01/16/2001		
G		0.00	12.0		12/05/2000	01/16/2001		
G		0.00	12.0		12/05/2000	01/16/2001		
G		0.00	12.0		12/05/2000	01/16/2001		
G		0.00	12.0		12/07/2000	01/16/2001		
G		0.00	12.0		12/07/2000	01/16/2001		
G		0.00	12.0		12/08/2000	01/16/2001		
G		0.00	12.0		12/08/2000	01/16/2001		
G		0.00	12.0		12/08/2000	01/16/2001		
G		0.00	12.0		12/07/2000	01/16/2001		
G		0.00	12.0		12/07/2000	01/16/2001		
G		0.00	10.0		12/04/2000	01/16/2001		
G		0.00	12.0		12/05/2000	01/16/2001		
G		0.00	8.0		12/06/2000	01/16/2001		
G		0.00	8.0		12/06/2000	01/16/2001		
G		0.00	8.0		12/06/2000	01/16/2001		
G		0.00	8.0		12/06/2000	01/16/2001		
G		0.00	10.0		12/04/2000	01/16/2001		
G		0.00	10.0		12/04/2000	01/16/2001		
G		0.00	10.0		12/04/2000	01/16/2001		

√	√
√	√
√	√
√	√
√	√
√	√
√	√
√	√
√	√
√	√
√	√
√	√
√	√
√	√
√	√
√	√
√	√
√	√
√	√
√	√
√	√
√	√
√	√
√	√
√	√

GRAN_50385	13.00S-31.00E-35 NW-NE	701	JACKSON OIL 131 N WASHINGTON CANYON CITY OR 97820	G		0.00	10.0		12/04/2000	01/16/2001			√	√
GRAN_50386	13.00S-31.00E-35 NW-NE	201	JACKSON OIL 131 N WASHINGTON CANYON CITY OR 97820	G		0.00	12.0		12/04/2000	01/16/2001			√	√
GRAN_50387	13.00S-31.00E-35 NW-NE	700	JACKSON OIL 131 N WASHINGTON CANYON CITY OR 97820	G		0.00	12.0		12/03/2000	01/16/2001			√	√
GRAN_50388	13.00S-31.00E-35 NW-NE	700	JACKSON OIL 131 N WASHINGTON CANYON CITY OR 97820	G		0.00	12.0		12/03/2000	01/16/2001			√	√
GRAN_50389	13.00S-31.00E-35 NW-NE	700	JACKSON OIL 131 N WASHINGTON CANYON CITY OR 97820	G		0.00	12.0		12/03/2000	01/16/2001			√	√
GRAN_50390	13.00S-31.00E-35 NW-NE	700	JACKSON OIL 131 N WASHINGTON CANYON CITY OR 97820	G		0.00	12.0		12/03/2000	01/16/2001			√	√
GRAN_50391	13.00S-31.00E-35 NW-NE	201	JACKSON OIL 131 N WASHINGTON CANYON CITY OR 97820	G		0.00	12.0		12/03/2000	01/16/2001			√	√
GRAN_50392	13.00S-31.00E-35 NW-NE	201	JACKSON OIL 131 N WASHINGTON CANYON CITY OR 97820	G		0.00	12.0		12/03/2000	01/16/2001			√	√
GRAN_50393	13.00S-31.00E-35 NW-NE	201	JACKSON OIL 131 N WASHINGTON CANYON CITY OR 97820	G		0.00	12.0		12/03/2000	01/16/2001			√	√
GRAN_50394	13.00S-31.00E-35 NW-NE	201	JACKSON OIL 131 N WASHINGTON CANYON CITY OR 97820	G		0.00	12.0		12/03/2000	01/16/2001			√	√
GRAN_50395	13.00S-31.00E-35 NW-NE	200	JACKSON OIL 131 N WASHINGTON CANYON CITY OR 97820	G		0.00	16.0		12/01/2000	01/16/2001			√	√
GRAN_50396	13.00S-31.00E-35 NW-NE	200	JACKSON OIL 131 N WASHINGTON CANYON CITY OR 97820	G		0.00	16.0		12/01/2000	01/16/2001			√	√
GRAN_50397	13.00S-31.00E-35 NW-NE	200	JACKSON OIL 131 N WASHINGTON CANYON CITY OR 97820	G		0.00	16.0		12/01/2000	01/16/2001			√	√
GRAN_50398	13.00S-31.00E-35 NW-NE	200	JACKSON OIL 131 N WASHINGTON CANYON CITY OR 97820	G		0.00	17.0		12/01/2000	01/16/2001			√	√
GRAN_50399	13.00S-31.00E-35 NW-NE	300	JACKSON OIL 131 N WASHINGTON CANYON CITY OR 97820	G		0.00	17.0		12/01/2000	01/16/2001			√	√
GRAN_50400	13.00S-31.00E-35 NW-NE	300	JACKSON OIL 131 N WASHINGTON CANYON CITY OR 97820	G		0.00			12/01/2000	01/16/2001			√	√
GRAN_50401	13.00S-31.00E-35 NW-NE	300	JACKSON OIL 131 N WASHINGTON CANYON CITY OR 97820	G		0.00	17.0		12/01/2000	01/16/2001			√	√
GRAN_50402	13.00S-31.00E-35 NW-NE	300	JACKSON OIL 131 N WASHINGTON CANYON CITY OR 97820	G		0.00	20.0		12/01/2000	01/16/2001			√	√
GRAN_50403	13.00S-31.00E-35 NW-NE	201	JACKSON OIL CO. 131 N WASHINGTON CANYON CITY OR 97820	M	15.00	20.00	15.0		12/02/2000	01/19/2001	BURROWS, JOSH ENVIRONMENTAL WEST EXPLORATIONS	136539	36707	√
GRAN_50404	13.00S-31.00E-35 NW-NE	300	JACKSON OIL CO. 131 N WASHINGTON CANYON CITY OR 97820	M	15.00	20.00	15.0		12/02/2000	01/19/2001	BURROWS, JOSH ENVIRONMENTAL WEST EXPLORATIONS	136535	36708	√
GRAN_50405	13.00S-31.00E-35 NW-NE	300	JACKSON OIL CO. 131 N WASHINGTON CANYON CITY OR 97820	M	15.00	20.00	15.0		12/02/2000	01/19/2001	BURROWS, JOSH ENVIRONMENTAL WEST EXPLORATIONS	136536	36709	√

GRAN_50408	13.00S-31.00E-35 NW-NE	100		JACKSON OIL CO. 131 N WASHINGTON CANYON CITY OR 97820
GRAN_50409	13.00S-31.00E-35 NW-NE	5000		JACKSON OIL CO. 131 N WASHINGTON CANYON CITY OR 97820
GRAN_50410	13.00S-31.00E-35 NW-NE	100		JACKSON OIL CO. 131 N WASHINGTON CANYON CITY OR 97820
GRAN_50411	13.00S-31.00E-35 NW-NE	5000		JACKSON OIL CO. 131 N WASHINGTON CANYON CITY OR
GRAN_50412	13.00S-31.00E-35 NW-NE	100		JACKSON OIL CO. 131 N WASHINGTON CANYON CITY OR 97820
GRAN_50413	13.00S-31.00E-35 NW-NE	300		JACKSON OIL CO. 131 N WASHINGTON CANYON CITY OR
GRAN_50414	13.00S-31.00E-35 NW-	100		JACKSON OIL CO. 131 N WASHINGTON CANYON CITY OR 97820
GRAN_50429	13.00S-31.00E-35 NW-NE	100	CANYON CITY	JACKSON OIL 131 N WASHINGTON CANYON CITY OR 97820
GRAN_50430	13.00S-31.00E-35 NW-NE	100	CANYON CITY	JACKSON OIL 131 N WASHINGTON CANYON CITY OR 97820
GRAN_50431	13.00S-31.00E-35 NW-NE	100	CANYON CITY	JACKSON OIL 131 N WASHINGTON CANYON CITY OR 97820
GRAN_50432	13.00S-31.00E-35 NW-NE	100	CANYON CITY	JACKSON OIL 131 N WASHINGTON CANYON CITY OR 97820
GRAN_50433	13.00S-31.00E-35 NW-NE	100	CANYON CITY	JACKSON OIL 131 N WASHINGTON CANYON CITY OR 97820
GRAN_50482	13.00S-31.00E-35 NW-NE			JACKSON OIL 131 N WASHINGTON CANYON CITY OR 97820
GRAN_50483	13.00S-31.00E-35 NW-NE			JACKSON OIL 131 N WASHINGTON CANYON CITY OR 97820
GRAN_50484	13.00S-31.00E-35 NW-NE			JACKSON OIL 131 N WASHINGTON CANYON CITY OR 97820
GRAN_50485	13.00S-31.00E-35 NW-NE			JACKSON OIL 131 N WASHINGTON CANYON CITY OR 97820
GRAN_50486	13.00S-31.00E-35 NW-NE			JACKSON OIL 131 N WASHINGTON CANYON CITY OR 97820

M	13.00	15.00	13.0			01/19/2001	BURROWS, JOSH ENVIRONMENTAL WEST EXPLORATIONS	136528	36701	√
M	13.00	20.00	13.0		11/30/2000	01/19/2001	BURROWS, JOSH ENVIRONMENTAL WEST EXPLORATIONS	136532	36702	√
M	13.00	15.00	13.0		11/30/2000	01/19/2001	BURROWS, JOSH ENVIRONMENTAL WEST EXPLORATIONS	136530	36703	√
M	15.00	20.00	15.0		11/30/2000	01/19/2001	BURROWS, JOSH ENVIRONMENTAL WEST EXPLORATIONS	136533	36704	√
M	15.00	20.00	15.0		11/30/2000	01/19/2001	BURROWS, JOSH ENVIRONMENTAL WEST EXPLORATIONS	136531	36705	√
M	15.00	20.00	15.0		12/02/2000	01/19/2001	BURROWS, JOSH ENVIRONMENTAL WEST EXPLORATIONS	136534	36706	√
M	15.00	25.00	15.0		12/02/2000	01/19/2001	BURROWS, JOSH ENVIRONMENTAL WEST EXPLORATIONS	137514	36711	√
M	15.00	20.00	13.6		05/01/2001	05/11/2001	BURROWS, JOSH ENVIRONMENTAL WEST EXPLORATIONS	139171	45271	√
M		13.00			05/01/2001	05/11/2001	BURROWS, JOSH ENVIRONMENTAL WEST EXPLORATIONS	139173	45270	√
M		12.00			05/01/2001	05/11/2001	BURROWS, JOSH ENVIRONMENTAL WEST EXPLORATIONS	139174	45268	√
M	15.00	19.00	13.0		05/01/2001	05/11/2001	BURROWS, JOSH ENVIRONMENTAL WEST EXPLORATIONS	139172	45269	√
M	15.00	20.00	13.0		05/02/2001	05/11/2001	BURROWS, JOSH ENVIRONMENTAL WEST EXPLORATIONS	139170	45272	√
M		0.00	13.0		11/14/2001	11/26/2001	BURROWS, JOSH ENVIRONMENTAL WEST EXPLORATIONS	145694	36710	√
M	13.00	25.00	13.0		11/14/2001	11/26/2001	BURROWS, JOSH ENVIRONMENTAL WEST EXPLORATIONS	145693	48120	√
M	13.00	25.00	13.0		11/13/2001	11/26/2001	BURROWS, JOSH ENVIRONMENTAL WEST EXPLORATIONS	145692	48121	√
M	16.00	25.00	16.0		11/13/2001	11/26/2001	BURROWS, JOSH ENVIRONMENTAL WEST EXPLORATIONS	145691	48086	√
M	30.00	40.00	30.0		11/13/2001	11/26/2001	BURROWS, JOSH ENVIRONMENTAL WEST EXPLORATIONS	145690	48087	√

GRAN_50798	13.00S-31.00E-35 NW-NE	5000	131 N WASHINGTON		JACKSON OIL CO. 131 N WASHINGTON CANYON CITY OR 97820	√	M		0.00			10/26/2005	11/16/2005	BURROWS, JOSH ENVIRONMENTAL WEST EXPLORATIONS	181724	√
GRAN_50799	13.00S-31.00E-35 NW-NE	5000	131 N WASHINGTON		JACKSON OIL CO. 131 N WASHINGTON CANYON CITY OR 97820	√	M		0.00			10/26/2005	11/16/2005	BURROWS, JOSH ENVIRONMENTAL WEST EXPLORATIONS	181723	√
GRAN_50800	13.00S-31.00E-35 NW-NE	5000	131 N WASHINGTON		JACKSON OIL CO. 131 N WASHINGTON CANYON CITY OR 97820	√	M		0.00			10/26/2005	11/16/2005	BURROWS, JOSH ENVIRONMENTAL WEST EXPLORATIONS	181725	√
GRAN_50801	13.00S-31.00E-35 NW-NE	5000	131 N WASHINGTON		JACKSON OIL CO. 131 N WASHINGTON CANYON CITY OR 97820	√	M		0.00			10/26/2005	11/16/2005	BURROWS, JOSH ENVIRONMENTAL WEST EXPLORATIONS	181722	√
GRAN_50802	13.00S-31.00E-35 NW-NE	5000	131 N WASHINGTON		JACKSON OIL CO. 131 N WASHINGTON CANYON CITY OR 97820	√	M		0.00			10/26/2005	11/16/2005	BURROWS, JOSH ENVIRONMENTAL WEST EXPLORATIONS	181726	√
GRAN_50978	13.00S-31.00E-35 NW-NE	100	131 N WASHINGTON		JACKSON OIL CO. 131 N WASHINGTON CANYON CITY OR 97820	√	M		0.00			04/21/2009	05/21/2009	CORN, MIKE HAZ-TECH DRILLING INC	1006171	√
GRAN_50979	13.00S-31.00E-35 NW-NE	100	131 N WASHINGTON		JACKSON OIL CO. 131 N WASHINGTON CANYON CITY OR 97820	√	M		0.00			04/21/2009	05/21/2009	CORN, MIKE HAZ-TECH DRILLING INC	1006172	√
GRAN_50980	13.00S-31.00E-35 NW-NE	100	131 N WASHINGTON		JACKSON OIL CO. 131 N WASHINGTON CANYON CITY OR 97820	√	M		0.00			04/21/2009	05/21/2009	CORN, MIKE HAZ-TECH DRILLING INC	1006173	√
GRAN_50981	13.00S-31.00E-35 NW-NE	100	131 N WASHINGTON		JACKSON OIL CO. 131 N WASHINGTON CANYON CITY OR 97820	√	M		0.00			04/21/2009	05/21/2009	CORN, MIKE HAZ-TECH DRILLING INC	1006174	√
GRAN_50982	13.00S-31.00E-35 NW-NE	100	131 N WASHINGTON		JACKSON OIL CO. 131 N WASHINGTON CANYON CITY OR 97820	√	M		0.00			04/21/2009	05/21/2009	CORN, MIKE HAZ-TECH DRILLING INC	1006175	√
GRAN_50983	13.00S-31.00E-35 NW-NE	100	131 N WASHINGTON		JACKSON OIL CO. 131 N WASHINGTON CANYON CITY OR 97820	√	M		0.00			04/21/2009	05/21/2009	CORN, MIKE HAZ-TECH DRILLING INC	1006176	√
GRAN_50984	13.00S-31.00E-35 NW-NE	100	131 N WASHINGTON		JACKSON OIL CO. 131 N WASHINGTON CANYON CITY OR 97820	√	M		0.00			04/21/2009	05/21/2009	CORN, MIKE HAZ-TECH DRILLING INC	1006177	√
GRAN_50985	13.00S-31.00E-35 NW-NE	100	131 N WASHINGTON		JACKSON OIL CO. 131 N WASHINGTON CANYON CITY OR 97820	√	M		0.00			04/21/2009	05/21/2009	CORN, MIKE HAZ-TECH DRILLING INC	1006178	√
GRAN_50986	13.00S-31.00E-35 NW-NE	100	131 N WASHINGTON		JACKSON OIL CO. 131 N WASHINGTON CANYON CITY OR 97820	√	M		0.00			04/21/2009	05/21/2009	CORN, MIKE HAZ-TECH DRILLING INC	1006179	√
GRAN_50987	13.00S-31.00E-35 NW-NE	100	131 N WASHINGTON		JACKSON OIL CO. 131 N WASHINGTON CANYON CITY OR 97820	√	M		0.00			04/21/2009	05/21/2009	CORN, MIKE HAZ-TECH DRILLING INC	1006180	√
GRAN_50988	13.00S-31.00E-35 NW-NE	100	131 N WASHINGTON		JACKSONS OIL CO. 131 N WASHINGTON CANYON CITY OR 97820	√	M		0.00			04/21/2009	05/21/2009	CORN, MIKE HAZ-TECH DRILLING INC	1006181	√
GRAN_50989	13.00S-31.00E-35 NW-NE	100	131 N WASHINGTON		JACKSONS OIL CO. 131 N WASHINGTON CANYON CITY OR 97820	√	M		0.00			04/21/2009	05/21/2009	CORN, MIKE HAZ-TECH DRILLING INC	1006182	√
GRAN_50990	13.00S-31.00E-35 NW-NE	100	131 N WASHINGTON		JACKSONS OIL CO. 131 N WASHINGTON CANYON CITY OR 97820	√	M		0.00			04/21/2009	05/21/2009	CORN, MIKE HAZ-TECH DRILLING INC	1006183	√
GRAN_50991	13.00S-31.00E-35 NW-NE	100	131 N WASHINGTON		JACKSONS OIL CO. 131 N WASHINGTON CANYON CITY OR 97820	√	M	4.21	0.00	25.0		04/21/2009	05/21/2009	CORN, MIKE HAZ-TECH DRILLING INC	1006184	√

[Download Data](#)

[Return to Well Log Query](#)

Well Log Query Results

Township: 13 S, Range: 31 E, Sections: 36

Well ID	Section	Range	Township	Owner	Address	City	State	Zip	W	80.00	152.00	70.0	20.0	11/30/1991	12/04/1991	BAUGHMAN, LAWRENCE L	18157	√	√
GRAN_66	13.00S-31.00E-36 SW-SW	201	MARYSVILLE RD	BAUGHMAN, LAWRENCE L	PO BOX 306	CANYON CITY	OR	97820	W	80.00	152.00	70.0	20.0	11/30/1991	12/04/1991	BAUGHMAN, LAWRENCE L	18157	√	√
GRAN_529	13.00S-31.00E-36 SW-NW			MATUNA, JOSEPH	MT VERNON	OR	97865		W	330.00	360.00	137.0	75.0	06/08/1979	06/21/1979	LANDWEER, TOM BLUE MT WELL DRILLING		√	√
GRAN_587	13.00S-31.00E-36 SW-SW			JOHNSON, MR MARLIN	301 EDGEWOOD DR	CANYON CITY	OR	97820	W		71.00	24.0	14.0	05/06/1986	06/11/1986	LANDWEER, THOMAS L BLUE MT DRILLING CO.		√	√
GRAN_588	13.00S-31.00E-36 SW-SW		EDGEWOOD DR	BULLOCK, DAVE	BOX 216	CANYON CITY	OR	97820	W		110.00	72.0	12.0	04/14/1986	05/14/1986	LANDWEER, THOMAS L BLUE MT DRILLING		√	√
GRAN_589	13.00S-31.00E-36 NW-SW			ELLISON, DANNY	336 N HUMBOLT	CANYON CITY	OR	97820	W	350.00	370.00	300.0	20.0	08/12/1985	08/15/1985	JOBE, BOND		√	√
GRAN_590	13.00S-31.00E-36 NE-NW			HILLIARD, JERRY	PO BOX 104	CANYON CITY	OR	97820	W	185.00	220.00	165.0	6.0	06/28/1984	08/01/1984	JOBE, BOND JOBE DRILLING		√	√
GRAN_591	13.00S-31.00E-36 SW-SW			WARNER, WM	CANYON CITY	OR	97820		W	51.00	90.00	33.0	9.0	03/30/1977	07/12/1977	JOBE, BOND NORTHWEST DRILLING		√	√
GRAN_592	13.00S-31.00E-36 SW-SE			RODGERS, JERRY	PO BOX 398	CANYON CITY	OR	97820	W	158.00	213.00	98.0	5.0	09/06/1978	10/11/1978	LANDWEER, TOM BLUE MT WELL DRILLING		√	√
GRAN_593	13.00S-31.00E-36 NE-SW					CANYON CITY	OR	97820	W		370.00	205.0	65.0	11/11/1963	12/12/1963	HOLLOWAY, MAX HOLLOWAY DRILLING CO.		√	√
GRAN_50526	13.00S-31.00E-36 NW-SW	800	CEMETERY RD		MID COUNTY CEMETERY DISTRICT PO BOX 508	JOHN DAY	OR	97845	W	348.00	400.00	348.0	15.0	08/10/2002	09/30/2002	NEAL, JAMES W J & W NEAL COMPANY	137369	√	√
GRAN_50535	13.00S-31.00E-36 NW-SW	302	CEMETERY AND MARYSVILLE RD	ELLISON, DANNY V	ELLISON, JANICE PO BOX 446	JOHN DAY	OR	97845	W	265.00	284.00	192.0	12.0	10/23/2002	11/14/2002	NEAL, JAMES W J & W NEAL COMPANY	151958 52203	√	√
GRAN_50536	13.00S-31.00E-36 NW-SW	302	CEMETERY AND MARYSVILLE RD	ELLISON, DANNY	ELLISON, JANICE PO BOX 446	JOHN DAY	OR	97845	W	248.00	278.00	196.0	12.0	10/28/2002	11/14/2002	NEAL, JAMES W J & W NEAL COMPANY	151957 52206	√	√
GRAN_50751	13.00S-31.00E-36 SE-SW	1000	61000 MARYSVILLE RD	ELLISON, KEN	301 NW 3RD AVE	JOHN DAY	OR	97845	W	332.00	370.00	188.0	7.0	06/04/2005	07/01/2005	NEAL, JAMES W J & W NEAL COMPANY	169195 67166	√	√
GRAN_50841	13.00S-31.00E-36 SW-SW	1100	MARYSVILLE LANE, CANYON CITY	JANSEN, NORM	PO BOX 3015	LA PINE	OR	97739	W	281.00	361.00	200.0	13.0	10/17/2006	11/15/2006	MARCIEL, JOHN MARCIEL WELL DRILLING & PUMPS	190244 87502	√	√
GRAN_50929	13.00S-31.00E-36	403	MARYSVILLE RD; LOT 3	ELLISON, KEN	301 NW 3RD ST	JOHN DAY	OR	97845	W	139.00	165.00	117.0	28.0	02/29/2008	03/21/2008	NEAL, JAMES W JWN COMPANY INC	195163 93381	√	√

[Download Data](#)[Return to Well Log Query](#)

Well Log Query Results

Township: 13 S, Range: 32 E, Sections: 6,7,16,17,18,20,32,33

No Records found matching that criteria, try entering just the Township, Range, and Section

[Download Data](#)

[Return to Well Log Query](#)

Well Log Query Results

Township: 13 S, Range: 32 E, Sections: 29

GRAN_616	13.00S-32.00E-29 SW-NW			SLINKARD, BOBY D 339 N HUMBOLT CANYON CITY OR 97820			W	38.00	117.00	34.0	18.0	01/28/1978	02/10/1978	SLINKARD, BOBY			√		√
GRAN_619	13.00S-32.00E-29 SW-NW			HIGGINS, MIKE JOHN DAY OR 97845			W	75.00	0.00			07/26/1977	08/02/1977	JOBE, BOND NORTHWEST DRILLING			√	√	√
GRAN_821	13.00S-32.00E-29 SE-NW	2601	DOG CREEK RD, JOHN DAY	MITCHELL, GORDON PO BOX 215 274 FRONT ST PRAIRIE CITY OR 97569			W	162.00	200.00	135.0	25.0	09/02/1992	09/08/1992	CLAUSON, CURT	46431		√		√
GRAN_50167	13.00S-32.00E-29 SW-SW	404	DAY CREEK RD	SLINKARD, MIKE BOX 323 CANYON CITY OR 97820			W	80.00	104.00	30.0	25.0	03/31/1998	06/08/1998	MARCIEL, JOHN JOHN MARCIEL	89512	23925	√		√
GRAN_50167 Version 2	13.00S-32.00E-29 SW-SW	404	DOG CREEK RD	SLINKARD, BOBY HCR 77 BOX 1035 JOHN DAY OR 97845			W	80.00	104.00	30.0	25.0	03/31/1998	06/08/1998	MARCIEL, JOHN JOHN MARCIEL	89512	23925	√		√
GRAN_16	13.00S-32.00E-29 SW-NW			GAGMN, PHIL CANYON CITY OR 97820		√	W	120.00	150.00	80.0	20.0		01/06/1999	JOBE, BOND JOBE DRILLING			√		√

[Download Data](#)[Return to Well Log Query](#)

Well Log Query Results

Township: 14 S, Range: 31 E, Sections: 1

Well ID	Section	Range	Township	Owner	Acres	Depth	Flow	Pressure	Completion	Production	Drilling Date	Production Date	Driller	Flow Rate	Pressure	Completion	Production	Drilling Date	Production Date	Driller	Flow Rate	Pressure	Completion	Production	
GRAN_712	14.00S-31.00E-1 SW-NW			STINNETT, JOHN CANYON CITY OR 97820		50.00	130.00	50.0	5.0	08/20/1980	09/05/1980		JOBE, BOND JOBE DRILLING INC.			√								√	
GRAN_713	14.00S-31.00E-1 NE-NE			MALLOCH, R S CANYON CITY OR 97820		36.00	214.00	47.0	12.0	08/28/1979	08/02/1979		LANDWEER, TOM BLUE MT WELL DRILLING			√								√	
GRAN_714	14.00S-31.00E-1			SINGLETON, CHUCK PINE VIEW LAIN OR		126.00	195.00	115.0	13.0	05/19/1978	04/24/1979		SINGLETON, CHUCK			√								√	
GRAN_715	14.00S-31.00E-1 NE-NE	1608		HILLIARD, MRS BONNIE MARYSVILLE RD CANYON CITY OR 97820		142.00	160.00	91.0	18.0	06/03/1979	06/21/1979		LANDWEER, TOM BLUE MT WELL DRILLING			√								√	
GRAN_716	14.00S-31.00E-1 NE-NE			SHEEDY, ROBIN CANYON CITY OR 97820			140.00	80.0	20.0	09/18/1970	10/08/1970		SKINNER, CATHERINE SKINNER & SONS WELL DRILLING			√								√	
GRAN_717	14.00S-31.00E-1 NE-NE			BATHWELL, ROGER JOHN DAY OR 97845		74.00	118.00	74.0	12.0	11/09/1971	02/28/1972		HYSELL, GLEN G HYSELL PUMP & DRILLING			√								√	
GRAN_718	14.00S-31.00E-1 NE-SE			TRAHERN, GEORG OR			138.00	98.0	3.0	10/02/1970	12/10/1970		SKINNER, CATHERINE SKINNER & SONS			√								√	
GRAN_806	14.00S-31.00E-1 NW-SW	1700		COUNTY OF GRANT PO BOX 214 COURTHOUSE CANYON CITY OR 97820		13.00	15.00	13.0		01/16/1992	02/14/1992		HIDDLESTON, RON	32128		√									
GRAN_807	14.00S-31.00E-1 NW-SW	1700		COUNTY OF GRANT PO BOX 214 COURTHOUSE CANYON CITY OR 97820		15.00	20.00	13.6		01/16/1992	02/14/1992		HIDDLESTON, RON	32127		√									
GRAN_808	14.00S-31.00E-1 NW-SW	1700		COUNTY OF GRANT PO BOX 214 COURTHOUSE CANYON CITY OR 97820		15.00	20.00	13.5		01/16/1992	02/14/1992		HIDDLESTON, RON	32126		√									
GRAN_809	14.00S-31.00E-1 NW-SW	1700		COUNTY OF GRANT PO BOX 214 COURTHOUSE CANYON CITY OR 97820		15.00	22.00	13.4		01/15/1992	02/14/1992		HIDDLESTON, RON	32125		√									
GRAN_810	14.00S-31.00E-1 NW-SW	1800		COUNTY OF GRANT PO BOX 214 COURTHOUSE CANYON CITY OR 97820		15.00	20.00	14.2		01/15/1992	02/14/1992		HIDDLESTON, RON	32124		√									
GRAN_50095	14.00S-31.00E-1 SW-NE	104		SCHUMACHER, ADAM BOX 399 CANYON CITY OR 97820		80.00	119.00	70.0	20.0	08/16/1990	08/21/1990		MCALLISTER, JOHN W RANCH & HOME INC.	18142		√									√
GRAN_50158	14.00S-31.00E-1 NE-NW	800	EDGEWOOD DR	HOLLADAY, EVERETT PO BOX 291 JOHN DAY OR 97845		67.00	100.00	44.0	25.0	04/10/1998	04/15/1998		THISSELL, KEVIN H KEVIN THISSELL	92395	12016	√									√
GRAN_7	14.00S-31.00E-1 NW-SE	101	PINE VIEWLANE	RODGERS, JERRY BOX 398 CANYON CITY OR 97820			193.00	100.0	20.0	08/10/1990	08/21/1990		MCALLISTER, JOHN W RANCH & HOME INC.	18400			√								√
GRAN_50225	14.00S-31.00E-1 NE-SE	110	PINEVIEW RD: E OF CANYON CITY RD 52	SAND, DOUGLAS	SAND: BARB PO BOX 267 CANYON CITY OR 97820		170.00	185.00	126.0	25.0	02/05/1999	03/02/1999	MARCIEL, JOHN JOHN MARCIEL	92296	23942	√									√
GRAN_50247	14.00S-31.00E-1 NE-SE	109	MARYSVILLE	AULT, DALE PO BOX 252 JOHN DAY OR 97845		√	165.00	240.00	130.0	55.0	07/05/1999	07/13/1999	NEAL, JAMES W J & W NEAL COMPANY	107377	19352	√									√

GRAN_50348	14.00S-31.00E-1 NW-NW		W 12TH ST AT CANYON BLVD		CITY OF CANYON CITY 200 CANYON CITY BLVD CANYON CITY OR 97820	G		0.00	16.0		09/07/2000	12/11/2000				√	√
GRAN_50349	14.00S-31.00E-1 NW-NW		W 12TH ST AT CANYON BLVD		CITY OF CANYON CITY 200 CANYON CITY BLVD CANYON CITY OR 97820	G		0.00	15.0		09/08/2000	12/11/2000				√	√
GRAN_50803	14.00S-31.00E-1 SW-NE	102	MARYSVILLE RD AND EDGEWOOD ROAD AND PINEVIEW ROAD	COCKRELL, GARY R 21439 FALLING WATER CREEK EAGLE RIVER OR 99577		W	210.00	264.00	138.0	4.0	10/21/2005	11/16/2005	MARCIEL, JOHN MARCIEL WELL DRILLING & PUMPS	177287	73930	√	√
GRAN_50807	14.00S-31.00E-1 NW-SE	102	MARYSVILLE RD AND EDGEWOOD RD	PARKER, JERRY	PARKER, GLENA 54847 LAVA BED RD PRINCETON OR 97721	W	149.00	170.00	104.0	16.0	12/21/2005	01/03/2006	MARCIEL, JOHN MARCIEL WELL DRILLING & PUMPS	177293	73933	√	√

[Download Data](#)

[Return to Well Log Query](#)

Well Log Query Results

Township: 14 S, Range: 31 E, Sections: 2

Well ID	Section	Owner	Direction	Depth (ft)	Flow (gpm)	Pressure (psi)	Temperature (°F)	Start Date	End Date	Operator	Well Type	Flow Status	Pressure Status	Temperature Status
GRAN_719	14.00S-31.00E-2 SW-SW	STOUT, LOREN BOX 43 JOHN DAY OR 97845	W	160.00	1.00	150.0	10.0	11/05/1987	11/25/1987	JOBE, BOND		√		√
GRAN_720	14.00S-31.00E-2 NE-SW	STOUT, LOREN BOX 43 JOHN DAY OR 97845	W	100.00	110.00	90.0	10.0	07/20/1984	08/08/1984	JOBE, BOND JOBE DRILLING		√		√
GRAN_721	14.00S-31.00E-2 NE-NE	SPROUFFSKE, ADAM ADAM DR CANYON CITY OR 97820	W	160.00	260.00	75.0	60.0	06/20/1980	02/04/1981	JOBE, BOND JOBE DRILLING INC.		√		√
GRAN_722	14.00S-31.00E-2 NW-NE	SPROUFFSKE, ADAM CANYON CITY OR 97820	W	270.00	260.00	200.0	75.0	03/08/1980	03/12/1980	JOBE, BOND JOBE DRILLING INC.		√		
GRAN_723	14.00S-31.00E-2 NE-SW	MILLS, KENNETH ADAM RD CANYON CITY OR 97820	W	253.00	275.00	180.0	50.0	10/06/1979	03/12/1980	LANDWEER, THOMAS L BLUE MT WELL DRILLING		√		√
GRAN_724	14.00S-31.00E-2 SE-NW	EARL, JERRY JOHN DAY OR 97845	W		0.00		0.0	11/23/1979	12/17/1979	JOBE, BOND JOBE DRILLING INC.		√	√	√
GRAN_725	14.00S-31.00E-2 NW-NE	BOTHEN, JIM CANYON CITY OR 97820	W	60.00	100.00	50.0	3.0	07/05/1979	07/10/1979	JOBE, BOND JOBE DRILLING INC.		√		√
GRAN_726	14.00S-31.00E-2 NE-NE	SMITH, DENNIS CANYON CITY OR 97820	W		0.00			11/10/1977	01/05/1978	JOBE, BOND NORTHWEST DRILLING		√	√	√
GRAN_727	14.00S-31.00E-2 SW-SW	GRIFFITH, MARTY CANYON CITY OR 97820	W		105.00		7.0	11/15/1977	01/05/1978	JOBE, BOND NORTHWEST DRILLING			√	√
GRAN_728	14.00S-31.00E-2 NE-NE	SMITH, DENNIS CANYON CITY OR 97820	W		0.00			11/12/1977	01/05/1978	JOBE, BOND NORTHWEST DRILLING		√	√	√
GRAN_729	14.00S-31.00E-2 NE-NE	SPROUFFSKI, ADAM CANYON CITY OR 97820	W	140.00	220.00	135.0	25.0	10/27/1977	12/02/1977	JOBE, BOND NORTHWEST DRILLING		√		√
GRAN_730	14.00S-31.00E-2 NW-NE	SPROUFFSKE, ADAM CANYON CITY OR 97820	W	26.00	348.00	20.0	4.0	08/20/1976	10/04/1976	JOBE, BOND NORTHWEST DRILLING		√		√
GRAN_731	14.00S-31.00E-2 SW-SE	SPROUFFSKE, GREG CANYON CITY OR 97820	W	84.00	100.00	56.0	15.0	03/28/1977	07/26/1977	JOBE, BOND NORTHWEST DRILLING		√		√
GRAN_732	14.00S-31.00E-2 SW-SW	GRIFFITH, MARTY CANYON CITY OR 97820	W	44.00	71.00	36.0	20.0	04/04/1977	07/12/1977	JOBE, BOND NORTHWEST DRILLING		√		√
GRAN_875	14.00S-31.00E-2 NE-NW	614 STINNETT, CHARLES PO BOX 356 CANYON CITY OR 97820	W	65.00	132.00	32.0	30.0	07/23/1995	07/26/1995	MARCIEL, JOHN	48727	√		√
GRAN_876	14.00S-31.00E-2 NE-NW	615 STINNETT, CHARLES PO BOX 356 CANYON CITY OR 97820	W	43.00	190.00	22.0	5.0	07/30/1995	08/04/1995	MARCIEL, JOHN	48728	√		√
GRAN_877	14.00S-31.00E-2 NE-NW	616 STINNETT, CHARLES P O BOX 356 CANYON CITY OR 97820	W	31.00	73.00	23.0	30.0	07/30/1995	08/04/1995	MARCIEL, JOHN	48729	√		√
GRAN_878	14.00S-31.00E-2 NE-NW	617 STINNETT, CHARLES P O BOX 356 CANYON CITY OR 97820	W	31.00	93.00	28.0	20.0	07/30/1995	08/04/1995	MARCIEL, JOHN	48730	√		√

GRAN_879	14.00S-31.00E-2 SE-NW	614	WEST BENCH	STINNETT, CHARLES PO BOX 356 CANYON CITY OR 97820	
GRAN_886	14.00S-31.00E-2	615		STINNETT, CHARLES PO BOX 356 CANYON CITY OR 97820	
GRAN_887	14.00S-31.00E-2 NE-NW	615		STINNETT, CHARLES PO BOX 356 CANYON CITY OR 97865	
GRAN_50004	14.00S-31.00E-2 SE-NW	614	RD 74 AND 51 INTERSECT	STINNETT, CHARLES J PO BOX 356; CO RD 74 CANYON CITY OR 97820	
GRAN_50005	14.00S-31.00E-2 NE-NW	614	NEAR CO RD 74 AND 75 INTERSECTION	STINNETT, CHARLES J PO BOX 356 COUNTY RD 74 CANYON CITY OR 97820	
GRAN_50011	14.00S-31.00E-2 NE-NW	614	COUNTY RD 74	STINNETT, CHARLES J PO BOX 356 COUNTY RD 74 CANYON CITY OR 97820	
GRAN_50012	14.00S-31.00E-2 SW-NE	105	MEADOWLARK LANE	STINNETT, CHARLES J COUNTY RD 74 PO BOX 356 CANYON CITY OR 97820	
GRAN_50016	14.00S-31.00E-2 SW-NE	105		STINNETT, CHARLES J PO BOX 356; CO RD 74 CANYON CITY OR 97820	
GRAN_50080	14.00S-31.00E-2 NE-NW	614	COUNTY RD 74	PENCE, F CARL PO BOX 591 JOHN DAY OR 97845	
GRAN_50082	14.00S-31.00E-2 NW-SE	100	ADDAM DR RD	SPROUFFSKE, ADAM PO BOX 216 CANYON CITY OR 97820	
GRAN_50175	14.00S-31.00E-2 NE-SW	600	ADAMS DR	STOUT, MARILYN A PO BOX 217 CANYON CITY OR 97820	
GRAN_50176	14.00S-31.00E-2 NE-SW	600	ADAMS DR	STOUT, MARILYN A PO BOX 217 CANYON CITY OR 97820	
GRAN_50278	14.00S-31.00E-2 SW-SW	606	ADAM DR; COUNTY RD 51	OLDHAM, JOHN A 8767 SILVER FALLS HWY SE AUMSVILLE OR 97325	
GRAN_50228	14.00S-31.00E-2 NE-NE	105	MEADOWLARK LANE; END OF W BENCH RD 74	STINNETT, CHARLES J PO BOX 356 CANYON CITY OR 97820	
GRAN_50230	14.00S-31.00E-2 SW-NE	105	END OF MEADOWLARK LANE; S OF NEW RD EXT; LOT 3	STINNETT, CHARLES J PO BOX 356 CANYON CITY OR 97820	
GRAN_50232	14.00S-31.00E-2 SW-SW	105	MEADOWLARK LANE; LOT 5	STINNETT, CHARLES J PO BOX 356 CANYON CITY OR 97820	
GRAN_50219	14.00S-31.00E-2	600		ALLEN, MELISSA 500 NW BRIDGE ST JOHN DAY OR 97845	
GRAN_50325	14.00S-31.00E-2 SW-SW	608	ADDAM DRIVE RD	SMITH, KERRY JOHN BOX 717 CANYON CITY OR 97820	

W	126.00	151.00	25.0	60.0	08/16/1995	08/29/1995	MARCIEL, JOHN	48731		√	√
W		133.00		0.0	08/16/1995	09/11/1995	MARCIEL, JOHN	48733		√	√
W		35.00		0.0	08/15/1995	09/11/1995	MARCIEL, JOHN	48734		√	√
W	142.00	152.00	46.0	15.0	01/12/1996	01/22/1996	WOODRUFF, HAROLD D. HAROLD WOODRUFF DRILLING	87691	44696	√	√
W	74.00	79.00	13.0	20.0	01/27/1996	02/02/1996	WOODRUFF, HAROLD D. HAROLD WOODRUFF DRILLING	61747		√	√
W	152.00	160.00	7.0	10.0	02/10/1996	02/14/1996	WOODRUFF, HAROLD D. HAROLD WOODRUFF DRILLING	61748		√	√
W	48.00	51.00	15.0	15.0	02/18/1996	02/22/1996	THISSELL, KEVIN H. KEVIN THISSELL	92300		√	√
W	42.00	45.00	20.0	5.0	03/02/1996	03/06/1996	THISSELL, KEVIN H. KEVIN THISSELL	92373	23943	√	√
W	64.00	68.00	20.0	10.0	10/22/1996	10/30/1996	THISSELL, KEVIN H KEVIN THISSELL	88157	12010	√	√
W	78.00	450.00	23.0	50.0	10/30/1996	11/20/1996	MARCIEL, JOHN JOHN MARCIEL	83389	4048	√	√
W	50.00	67.00	4.0	5.0	09/01/1998	09/08/1998	RILEY, TIMOTHY K WESTERN DRILLING CO.	114675	21294	√	√
W		0.00			08/28/1998	09/08/1998	RILEY, TIMOTHY K WESTERN DRILLING CO.	114674		√	√
W	25.00	46.00	16.0	40.0	09/23/1999	11/08/1999	MARCIEL, JOHN MARCIEL WELL DRILLING & PUMPS	89528	33419	√	√
W	190.00	213.00	55.0	65.0	04/05/1999	04/14/1999	MARCIEL, JOHN JOHN MARCIEL	89522	23945	√	√
W	42.00	133.00	22.0	6.0	04/01/1999	04/14/1999	MARCIEL, JOHN JOHN MARCIEL	89520	23943	√	√
W	32.00	393.00	25.0	3.0	04/13/1999	04/26/1999	MARCIEL, JOHN JOHN MARCIEL	89521	23946	√	√
W						12/21/1998			30526		
W	40.00	93.00	12.0	130.0	09/27/2000	10/16/2000	MARCIEL, JOHN MARCIEL WELL DRILLING & PUMPS	128749	38246	√	√

GRAN_50350	14.00S-31.00E-2 SW-SW	608	ADAM DR RD	SMITH, ALENA	SMITH, CLIFFORD PO BOX 66 SENECA OR 97873
GRAN_50352	14.00S-31.00E-2 SW-SW	608	ADAMS DR RD	MOULTON, J MARK PO BOX 392 CANYON CITY OR 97820	
GRAN_50353	14.00S-31.00E-2 SW-SW	608	ADAMS DRIVE RD	MOULTON, J MARK PO BOX 392 CANYON CITY OR 97820	
GRAN_50354	14.00S-31.00E-2 NE-SW	624	ADAM DRIVE RD	MILLER, NICK 18473 OLD MEHAMA RD STAYTON OR 97383	
GRAN_50422	14.00S-31.00E-2 SW-SW	608	ADAM DRIVE RD	BUSH, ERIC	BUSH, SARAH PO BOX 422 CANYON CITY OR 97820
GRAN_50505	14.00S-31.00E-2 NW-SW	612	ADAMS DRIVE RD	NICHOLSON, LYNN	NICHOLSON, CHERYL 2684 PHEASANT HILL RD CAMARILLO CA 93010
GRAN_50506	14.00S-31.00E-2 NW-SW	612	ADAMS DRIVE RD	NICHOLSON, LYNN	NICHOLSON, CHERYL 2684 PHEASANT HILL RD CAMARILLO CA 93010
GRAN_50534	14.00S-31.00E-2 SW-NE	109	27068 ADAM DR	RAVELL, BOB PO BOX 207 CANYON CITY OR 97820	
GRAN_50718	14.00S-31.00E-2 NE-SW	624	ADAMS DR RD; 26779	MILLER, NICK PO BOX 37 CANYON CITY OR 97820	
GRAN_50745	14.00S-31.00E-2 SW-SW	631	EAGLE POINT RD; FROM ADAMS DR; FIRST LOT ON RIGHT; LOT 26568	FOWLER, WENDY 63007 TERRY DR BEND OR 97701	
GRAN_50818	14.00S-31.00E-2 NW-SW	621	ADELAN RD	MILLER, NICK PO BOX 37 CANYON CITY OR 97820	
GRAN_50876	14.00S-31.00E-2 NE-SW	603	60420 MEADOWLARK LANE	SAXTON, EILEEN PO BOX 234 CANYON CITY OR 97820	
GRAN_50877	14.00S-31.00E-2 NE-SW	625	ADAMS DR RD	MADDEN, JESSE 205 NUGGET ST CANYON CITY OR 97820	
GRAN_50878	14.00S-31.00E-2 NE-SW	625	ADAMS DR RD	MADDEN, JESSE 205 NUGGET ST CANYON CITY OR 97820	
GRAN_50887	14.00S-31.00E-2 NW-SE	632	ADAMS DRIVE RD	MADEN, JESSY 205 NUGGET ST CANYON CITY OR 97820	
GRAN_50889	14.00S-31.00E-2 SE-SW	629	26753 ADAMS RD	PAGE, RICK PO BOX 868 JOHN DAY OR 97845	
GRAN_50970	14.00S-31.00E-2 SW-NE	105	60498 MEADOW LARK LANE	HART, LARRY PO BOX 389 CANYON CITY OR 97820	

W	43.00	113.00	47.0	75.0	09/26/2000	12/14/2000	MARCIEL, JOHN MARCIEL WELL DRILLING & PUMPS	91118	38247	√		√
W	31.00	60.00	31.0	1.0	09/21/2000	12/15/2000	MARCIEL, JOHN MARCIEL WELL DRILLING & PUMPS	91117	38244	√		√
W	28.00	113.00	20.0	30.0	09/25/2000	12/15/2000	MARCIEL, JOHN MARCIEL WELL DRILLING & PUMPS	128747	38245	√		√
W	24.00	113.00	77.0	1.0	10/17/2000	01/10/2001	MARCIEL, JOHN MARCIEL WELL DRILLING & PUMPS	128739	38248	√		√
W	147.00	273.00	87.0	13.0		03/05/2001	MARCIEL, JOHN MARCIEL WELL DRILLING & PUMPS	137834	38252	√		√
W		273.00			05/20/2002	06/17/2002	MARCIEL, JOHN MARCIEL WELL DRILLING & PUMPS	137862		√	√	√
W	100.00	106.00	14.0	21.0	05/21/2002	06/17/2002	MARCIEL, JOHN MARCIEL WELL DRILLING & PUMPS	137861	53247	√		√
W	78.00	162.00	38.0	16.0	10/02/2002	11/08/2002	MARCIEL, JOHN MARCIEL WELL DRILLING & PUMPS	152151	53257	√		√
W	100.00	108.00	46.0	13.0	06/07/2004	06/15/2004	MARCIEL, JOHN MARCIEL WELL DRILLING & PUMPS	152167	53278	√		√
W	67.00	140.00	22.0	7.0	01/21/2005	04/01/2005	NEAL, JAMES W J & W NEAL COMPANY	169189	67162	√		√
W	32.00	120.00	2.5	6.0	05/16/2006	06/19/2006	MARCIEL, JOHN MARCIEL WELL DRILLING & PUMPS	177297	73936	√		√
W	105.00	225.00	27.0	75.0	04/26/2007	05/04/2007	MARCIEL, JOHN MARCIEL WELL DRILLING & PUMPS	190248	87509	√		√
W		425.00		0.0	05/02/2007	05/14/2007	MARCIEL, JOHN MARCIEL WELL DRILLING & PUMPS	190249	87510	√		√
W		0.00			05/03/2007	05/14/2007	MARCIEL, JOHN MARCIEL WELL DRILLING & PUMPS	190250	67160		√	√
W	238.00	245.00	82.0	83.0	05/30/2007	06/27/2007	MARCIEL, JOHN MARCIEL WELL DRILLING & PUMPS	190253	87514	√		√
W		0.00			06/06/2007	06/27/2007	MARCIEL, JOHN MARCIEL WELL DRILLING & PUMPS	190255		√	√	√
W	42.00	133.00	22.0	3.0	12/06/2008	01/22/2009	MARCIEL, JOHN MARCIEL WELL DRILLING & PUMPS	197258	23943		√	√

GRAN_51004	14.00S-31.00E-2 SW-SW	608	266455 ADAMS DR RD	SMITH, CLIFFORD PO BOX 155 CANYON CITY OR 97820		W	225.00	229.60	110.0	60.0	07/13/2009	07/29/2009	MARCIEL, JOHN MARCIEL WELL DRILLING & PUMPS	197277	101579	√	√
GRAN_51038 Exempt Use Map	14.00S-31.00E-2 NE-SW	608	26647 ADAMS DR RD	SMITH, KERRY P O BOX 717 CANYON CITY OR 97820		W	185.00	245.00	95.0	25.0	09/10/2010	09/14/2010	ABBAS, JACK ABBAS WELL DRILLING CO	1011270	104385	√	√

[Download Data](#)

[Return to Well Log Query](#)

Well Log Query Results

Township: 14 S, Range: 31 E, Sections: 8

GRAN_734	14.00S-31.00E-8 SE-NE		JACKSON, ELDON MOUNT VERNON OR 97865			W	45.00	60.00	30.0	2.0	05/09/1979	05/15/1979	JOBE, BOND JOBE DRILLING INC.			√														√

[Download Data](#)
[Return to Well Log Query](#)

Well Log Query Results

Township: 14 S, Range: 31 E, Sections: 13

GRAN_50562	14.00S-31.00E-13 SW-SW	1	HWY 395; 4 MILES S OF CANYON CITY	CRAB, TERRACE 26080 HWY 395 CANYON CITY OR 97820			W	26.00	430.00	28.0	2.0	12/20/2002	02/03/2003	NEAL, JAMES W J & W NEAL COMPANY	137375	52208	√		√	
----------------------------	---------------------------	---	---	--	--	--	---	-------	--------	------	-----	------------	------------	--	--------	-------	---	--	---	--

[Download Data](#)[Return to Well Log Query](#)

Well Log Query Results

Township: 14 S, Range: 31 E, Sections: 3,4,5,9,11,12,14,15

No Records found matching that criteria, try entering just the Township, Range, and Section

[Download Data](#)

[Return to Well Log Query](#)

Well Log Query Results

Township: 14 S, Range: 32 E, Sections: 5

Well ID	Section	Owner	Direction	Depth (ft)	Flow (gpm)	Pressure (psi)	Flow (gpm)	Pressure (psi)	Start Date	End Date	Company	Well ID	Status	Status
GRAN_26	14.00S-32.00E-5 NW-NW	SHEEDY, CARL PO BOX 536 JOHN DAY OR 97845	W	12.00	260.00	0.0			09/13/1990	10/05/1990	MCALLISTER, JOHN W WESTERN DRILLING CO	18143	√	√
GRAN_27	14.00S-32.00E-5 NW-NW	SHEEDY, CARL PO BOX 536 JOHN DAY OR 97845	W	42.00	50.00	12.0	10.0		09/19/1990	10/05/1990	MCALLISTER, JOHN W WESTERN DRILLING CO	18399	√	√
GRAN_28	14.00S-32.00E-5 NW-NW	SHEEDY, CARL PO BOX 536 JOHN DAY OR 97845	W		40.00				09/14/1990	10/05/1990	MCALLISTER, JOHN W WESTERN DRILLING CO	18399	√	√
GRAN_751	14.00S-32.00E-5 SW-NW	BARNTISH, DAVE PO BOX 327 CANYON CITY OR 97820	W	30.00	75.00	18.0	5.0		10/24/1984	11/23/1984	JOBE, BOND		√	√

[Download Data](#)

[Return to Well Log Query](#)

Well Log Query Results

Township: 14 S, Range: 32 E, Sections: 7,17,18

No Records found matching that criteria, try entering just the Township, Range, and Section

[Download Data](#)

[Return to Well Log Query](#)

APPENDIX E
COMMUNITY AND MUNICIPAL PWS SYSTEM INFORMATION
AND
SOURCE WATER ASSESSMENT REPORTS

[Introduction](#) :: [Data Search Options](#) :: [WS Name Look Up](#) :: [WS ID Look Up](#) :: [DWP Home](#) :: [Quick Data Links](#)

OR41 00410 **JOHN DAY, CITY OF** **Classification:** COMMUNITY

<p>Contact: MONTE LEGG 450 EAST MAIN JOHN DAY, OR 97845</p> <p>Population: 1,920</p> <p>Operating Period: January 1 to December 31</p> <p>Certified Operator(s) Required: Y Distribution class: 2 Treatment class: None Filtration Endorsement Required: No</p>	<p>Phone: 541-575-0753</p> <p>County: GRANT</p> <p>Activity Status: ACTIVE -- History</p> <p>Number of Connections: 821</p> <p>Regulating Agency: GRANT COUNTY</p> <p>Owner Type: LOCAL GOVERNMENT</p> <p>Licensed By: N/A</p> <p>Approved Drinking Water Protection Plan: No</p> <p>Source Water Assessment: Yes</p> <p>Last Survey Date: Nov 05, 2008</p>
---	---

Sources

<u>Facility ID</u>	<u>Facility Name</u>	<u>Well Logs</u>	<u>Activity Status</u>	<u>Availability</u>	<u>Source Type</u>
EP-A	EP FOR LONG GULCH SPRINGS		A		GW
SRC-AA	LONG GULCH SPRINGS		A	Permanent	GW
EP-B	EP FOR WELL #2 (CITY SHOP)		I		GW
SRC-BA	WELL #2 (GRAN 435)		I	Emergency	GW
EP-C	EP FOR WELL #3 (HOLMSTROM)		A		GW
SRC-CA	WELL #3 (GRAN 434)		A	Permanent	GW
EP-D	EP FOR WELL #4 (MALONE)		I		GW
SRC-DA	WELL #4 (GRAN 427)		I	Emergency	GW
EP-E	EP FOR WELL #5 (BRIDGE ST & NE 7TH AVE)		A		GW
SRC-EA	WELL #5 (L61610)		A	Permanent	GW

Treatment

<u>State ID</u>	<u>Facility Name</u>	<u>Treatment Process</u>	<u>Treatment Objective</u>	<u>Filter Type</u>
WTP-A	TP FOR LONG GULCH SPRINGS	RESID. MAINT. HYPOCHLORINATION	OTHER	
WTP-C	TP FOR WELL #3	RESID. MAINT. GAS CHLORINATION	OTHER	
WTP-C	TP FOR WELL #3	SEQUESTRATION	IRON REMOVAL	
WTP-D	TP FOR WELL #4	RESID. MAINT. GAS CHLORINATION	OTHER	
WTP-D	TP FOR WELL #4	SEQUESTRATION	IRON REMOVAL	
WTP-E	TP FOR WELL #5	RESID. MAINT. HYPOCHLORINATION	OTHER	
WTP-E	TP FOR WELL #5	SEQUESTRATION	IRON REMOVAL	

Consumer Confidence Reports

<u>For Year</u>	<u>Date Received</u>	<u>Date Certified</u>
2010	Jun 27, 2011	Jun 27, 2011
2009	<i>Not received</i>	
2008	Jun 29, 2009	
2007	Jun 26, 2008	Jun 26, 2008

Cross Connection Annual Summary Reports

<u>Ordinance Received</u>	<u>Ordinance Status</u>	<u>ASR Received</u>
Yes	Final	2010 2009 2008

WATER SUPPLY WELL REPORT

(as required by ORS 537.765)

WATER RESOURCES DEPT

Instructions for completing this report are on the last page of this form

SALEM, OREGON

(START CARD) # 150737

(1) OWNER:

Well Number: #5

Name City of John Day
Address 450 East Main St.
City John Day State OR Zip 97845

(2) TYPE OF WORK:

[X] New Well [] Deepening [] Alteration (repair/recondition) [] Abandonment

(3) DRILL METHOD:

[X] Rotary Air [X] Rotary Mud [] Cable [] Auger [] Other

(4) PROPOSED USE:

[] Domestic [X] Community [] Industrial [] Irrigation
[] Thermal [] Injection [] Livestock [] Other

(5) BORE HOLE CONSTRUCTION:

Special Construction approval [] Yes [X] No Depth of Completed Well 199 ft.
Explosives used [] Yes [X] No Type Amount

Table with columns: HOLE Diameter, From, To, SEAL Material, From, To, Amount sacks or pounds. Includes rows for Cement and Bentonite.

How was seal placed: Method [] A [] B [X] C [] D [] E [] Other

Backfill placed from 199 ft. to 215 ft. Material Cement
Gravel placed from ft. to ft. Size of gravel

(6) CASING/LINER:

Table with columns: Diameter, From, To, Gauge, Steel, Plastic, Welded, Threaded. Includes rows for Casing and Liner.

Final location of shoe(s)

(7) PERFORATIONS/SCREENS:

[X] Perforations Method Factory Saw
[X] Screens Type 304slotted Material Stainless

Table with columns: From, To, Slot size, Number, Diameter, Tele/pipe size, Casing, Liner. Lists perforation details.

(8) WELL TESTS: Minimum testing time is 1 hour

[X] Pump [] Bailer [] Air [] Flowing Artesian

Table with columns: Yield gal/min, Drawdown, Drill stem at, Time. Shows test results: 840, 58, 120, 26 hr.

Temperature of Water 64 Depth Artesian Flow found

Was a water analysis done? [] Yes [] No By whom
Did any strata contain water not suitable for intended use? [] Too little
[] Salty [] Muddy [] Odor [] Colored [] Other

Depth of strata:

(9) LOCATION OF WELL by legal description:

County Grant Latitude Longitude
Township 13S N or S. Range 31E E or W. of WM.
Section 23 NE 1/4 SW 1/4
Tax lot 4301 Lot Block Subdivision
Street Address of Well (or nearest address) Next to Marge Wagners
at end of N. end of Bridge St.

(10) STATIC WATER LEVEL:

8.5 ft. below land surface. Date 3/7/03
Artesian pressure lb. per square inch. Date

(11) WATER BEARING ZONES:

Depth at which water was first found 12

Table with columns: From, To, Estimated Flow Rate, SWL. Shows water bearing zones.

(12) WELL LOG:

Ground elevation

Table with columns: Material, From, To, SWL. Detailed well log entries.

Continued on next page

Date started 11/20/02 Completed 3/7/03

(unbonded) Water Well Constructor Certification:

I certify that the work I performed on the construction, alteration, or abandonment of this well is in compliance with Oregon water supply well construction standards. Materials used are of proper quality and proper design to the best of my knowledge and belief.

Western Water Development
P.O. Box 1670 WWC Number
Redmond, OR 97756 Signed

(bonded) Water Well Constructor Certification:

I accept responsibility for the construction, alteration, or abandonment work performed on this well during the construction dates reported above. All work performed during this time is in compliance with Oregon water supply well construction standards. This report is true to the best of my knowledge and belief.

Robert Buckner WWC Number 1385
Signed Robert Buckner Date 3/9/03

WATER SUPPLY WELL REPORT 2003
(as required by ORS 537.765)

(START CARD) # 150737

Page 2

Instructions for completing this report are on the last page of this form

(1) OWNER:

SALEM, OREGON

Well Number: #5

Name City of John Day
Address 450 East Main St.
City John Day State OR Zip 97845

(2) TYPE OF WORK:

New Well Deepening Alteration (repair/recondition) Abandonment

(3) DRILL METHOD:

Rotary Air Rotary Mud Cable Auger
 Other

(4) PROPOSED USE:

Domestic Community Industrial Irrigation
 Thermal Injection Livestock Other

(5) BORE HOLE CONSTRUCTION:

Special Construction approval Yes No Depth of Completed Well _____ ft.
Explosives used Yes No Type _____ Amount _____

HOLE			SEAL			Amount	
Diameter	From	To	Material	From	To	sacks or pounds	

How was seal placed: Method A B C D E
 Other

Backfill placed from _____ ft. to _____ ft. Material _____
Gravel placed from _____ ft. to _____ ft. Size of gravel _____

(6) CASING/LINER:

	Diameter	From	To	Gauge	Steel	Plastic	Welded	Threaded
Casing:					<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Liner:					<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Final location of shoe(s)

(7) PERFORATIONS/SCREENS:

Perforations Method Factory Saw
 Screens Type 304 Slotted Material Stainless

From	To	Slot size	Number	Diameter	Tele/pipe size	Casing	Liner
161	171	3/16	480	12"	pipe	<input type="checkbox"/>	<input checked="" type="checkbox"/>
171	176	.25		12"	pipe	<input type="checkbox"/>	<input checked="" type="checkbox"/>

(8) WELL TESTS: Minimum testing time is 1 hour

Pump Bailor Air Flowing Artesian

Yield gal/min Drawdown Drill stem at Time

Temperature of Water _____ Depth Artesian Flow found _____

Was a water analysis done? Yes By whom _____

Did any strata contain water not suitable for intended use? Too little

Salty Muddy Odor Colored Other

Depth of strata: _____

(9) LOCATION OF WELL by legal description:

County Grant Latitude Longitude
Township 13S N or S. Range 31E E or W. of W.M.
Section 23 NE 1/4 SW 1/4
Tax lot 4301 Lot Block Subdivision
Street Address of Well (or nearest address) Next to Marge Wagners
at end of N. end of Bridge St.

(10) STATIC WATER LEVEL:

_____ ft. below land surface. Date _____
Artesian pressure _____ lb. per square inch. Date _____

(11) WATER BEARING ZONES:

Depth at which water was first found _____

From	To	Estimated Flow Rate	SWL

(12) WELL LOG:

Ground elevation _____

Material	From	To	SWL
Hard Gray Basalt some fractures	146		
WB		160	9
Medium Fractured Gray Basalt WB	160	163	9
Harder Gray Basalt	163	171	9
Fractured Gray Basalt & Green	171		
Shale WB		178	9
Green Serpentine	178	236	9

Fill material from water bearing zone between 140' and 170'. Did not remove by airlift method upon completion of drilling so we pumped a 50 sack cement plug from 216' back to 199'. 20" casing cutoff 6' below ground level and Steel ring welded solid between 16" and 20" casing. 16" casing stickup is 3' above grade. After setting casing and screen, silty material was found in bottom of well. Cleaned by airlift pumping with drill rig and redisinfectied well. Video showed clear well with approx. 7' of same material in well after sitting overnight.

Date started 11/20/02 Completed 3/7/03

(unbonded) Water Well Constructor Certification:

I certify that the work I performed on the construction, alteration, or abandonment of this well is in compliance with Oregon water supply well construction standards. Materials used and methods employed were to my best knowledge and belief.

Western Water Development
P.O. Box 1670 WWC Number
Redmond, OR 97756
Signed _____

(bonded) Water Well Constructor Certification:

I accept responsibility for the construction, alteration, or abandonment work performed on this well during the construction dates reported above. All work performed during this time is in compliance with Oregon water supply well construction standards. This report is true to the best of my knowledge and belief.

Western Water Development
Signed _____ Date 3/9/03
WWC Number 1385

Robert Buckner

SOURCE WATER ASSESSMENT REPORT

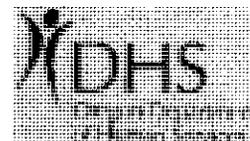
Summary of Analysis

City of John Day
John Day, Oregon
Grant County
PWS #4100410

December 2005

Prepared By

Oregon Department of Human Services
Health Services
Drinking Water Program



And

Oregon Department of Environmental Quality
Water Quality Division
Drinking Water Protection



State of Oregon
Department of
Environmental
Quality

Available in Alternate Formats by contacting the DHS DWP at (541) 726-2587

TABLE OF CONTENTS

1. INTRODUCTION.....	1
2. WATER SYSTEM BACKGROUND.....	2
2.1 LOCATION OF THE DRINKING WATER SOURCE(S).....	2
2.2 SOURCE CONSTRUCTION	3
2.3 NATURE AND CHARACTERISTICS OF THE AQUIFER	3
3. DELINEATION RESULTS.....	5
4. SENSITIVITY ANALYSIS RESULTS	7
5. POTENTIAL CONTAMINANT SOURCE INVENTORY.....	11
5.1 POTENTIAL CONTAMINANT SOURCES WITHIN THE TWO-YEAR TIME-OF-TRAVEL ZONE FOR THE WELLS	12
5.2 POTENTIAL CONTAMINANT SOURCES WITHIN THE FIVE-YEAR AND FIFTEEN-YEAR TIME-OF-TRAVEL ZONES FOR THE WELLS.....	12
5.3 POTENTIAL CONTAMINANT SOURCES WITHIN THE DWPA FOR LONG GULCH SPRING.....	13
6. SUSCEPTIBILITY OF THE DRINKING WATER SOURCE	14
6.1 AQUIFER SUSCEPTIBILITY TO POTENTIAL CONTAMINANT SOURCES INSIDE THE DRINKING WATER PROTECTION AREA.	14
6.2-A WATER SYSTEM SUSCEPTIBILITY TO VIRAL CONTAMINANT SOURCES WITHIN THE SHORT-TERM (ZONE 1) GROUNDWATER SUPPLY AREA.....	17
6.2-B WATER SYSTEM SUSCEPTIBILITY TO VIRAL CONTAMINANT SOURCES WITHIN THE TWO-YEAR TIME-OF-TRAVEL ZONE.	17
7. CONCLUSIONS	18
8. RECOMMENDED USE OF THE SOURCE WATER ASSESSMENT REPORT	19
APPENDIX MATERIALS.....	22

City of John Day

Source Water Assessment Report

Summary of Analysis

1. Introduction

The Source Water Assessment Program, mandated by the 1996 Amendments to the Safe Drinking Water Act, requires that states provide the information needed by public water systems to develop drinking water protection plans if they choose. That information includes the identification of the area most critical to maintaining safe drinking water, i.e., the Drinking Water Protection Area, an inventory of potential sources of contamination within the Drinking Water Protection Area, and an assessment of the relative threat that these potential sources pose to the water system.

The intent of this report is to present our conclusions regarding the source water assessment analysis for your water system. It is our hope that this information will be used as a basis for reducing the risk of contamination to your water source through the development of a voluntary Drinking Water Protection Plan (DWPP). Should you decide to proceed with the development of a DWPP, this document can serve as the foundation for the plan. If, however, a more in depth analysis of the local hydrogeology, water system susceptibility, and/or the water system specific assumptions is needed to help promote the development of a DWPP, a more comprehensive assessment analysis can be made available to you by contacting either the DHS Project Manager or the DHS Drinking Water Program Groundwater Coordinator.

The methodology that the Source Water Assessment results are based on is included in the attached appendix materials under the heading, "Source Water Assessment Methodology". This includes a discussion of the source water assessment project; groundwater basics; and the processes involved with conducting the delineation, sensitivity analysis, potential contaminant source inventory, and overall water system susceptibility. Therefore, it is our intention that the assessment results, identified in this portion of the report, be used in conjunction with the methodology and rationale presented in the appendix materials. For instance, if questions arise regarding our conclusions with respect to a specific element of the assessment (i.e. type of delineation used, aquifer sensitivity, well construction sensitivity, etc...), the methodology that led to our conclusions can be reviewed in the appendix materials for further clarification.

We believe public awareness is a powerful tool for protecting drinking water and that the information provided in this report will help you increase local awareness regarding land use activities and local drinking water quality. We have also included a "Groundwater Fact Sheet" and a list of Oregon specific drinking water protection information and resources titled "Drinking Water Protection in Oregon" in the appendix materials.

2. Water System Background

The City of John Day water system is located in Grant County and serves approximately 1,840 people through 1,072 connections. Drinking water is supplied by one spring source and two wells, commonly referred to as Long Gulch Springs, Well #3 (Holmstrom), and Well #4 (Malone). According to DHS Drinking Water Program records, the spring and Well #3 serve as permanent water sources and Well #4 serves as a seasonal water source. Well #2 is currently inactive and Well #5 serves as an inactive emergency water source; therefore, these two wells are not assessed in this report.

2.1 Location of the Drinking Water Source(s)

We have located your drinking water source(s) using a Trimble GeoExplorer II Global Positioning System (GPS) unit. The data has been differentially corrected to remove some of the common positioning errors. The location of the source(s), with the corresponding Drinking Water Protection Area, has been placed in a Geographic Information System (GIS) layer and projected onto a USGS 7.5 minute topographic map that is included within this report. In order to be consistent with the topographic map, the projection uses the NAD1927 datum. The latitude and longitude values given on the map and below, however, reflect a projection in the more commonly used WGS1984 datum.

Data collection specifics include:

- 150 individual measurements,
- linked to a minimum of four satellites,
- a PDOP of less than 6 (pertains to precision of measurement), and
- a signal to noise ratio of greater than 5.

The raw data was subjected to differential correction using the PATHFINDER software. The location data for your drinking water source(s) using the WGS84 datum is as follows:

Source	Latitude	Longitude
Well 3 - Source CA	44° 25' 25.840" N	118° 56' 49.409" W
Well 4 - Source DA	44° 25' 19.424" N	118° 57' 01.379" W
Long Gulch Springs - Source AA	44° 24' 22.973" N	118° 56' 48.185" W

2.2 Source Construction

According to the water system, Long Gulch Spring may have been constructed in the 1970s. The spring consists of three mine shafts with perforated collector pipes buried in gravel along the floor. Impervious concrete was poured around the entrance to the shafts and locked, watertight doors were installed. The spring water flows into a 75,000-gallon concrete tank and then into a 438,000-gallon concrete tank before it enters the pump station. In a sanitary survey conducted on 3/16/04, DHS Drinking Water Program staff determined that there are no visible spring construction deficiencies pertaining to drinking water protection.

Well #3 was constructed from June to August 1963. A 20-inch diameter hole was drilled to 20 feet, with a 12-inch diameter hole continuing to 250 feet. Twelve-inch diameter casing was installed from a depth of one foot to a depth of 59 feet. No screens or perforations were installed; therefore, water can enter the well through the uncased portion of the borehole. Concrete was placed between the casing and the outer wall of the hole from the surface to a depth of 20 feet to serve as a casing seal. This casing seal is considered inadequate because it leaves the well open to two different aquifers. In a sanitary survey conducted on 3/16/04, DHS Drinking Water Program staff determined that there are no well construction deficiencies visible at the surface pertaining to drinking water protection. A copy of the well report for this well is included in the appendix materials.

Well #4 was constructed from November 1980 to January 1981. An 18-inch diameter hole was drilled to 93 feet, with a 16-inch diameter hole continuing to 104 feet, and a 15.5-inch diameter hole completing the well. Eighteen-inch diameter casing was installed from the surface to a depth of 93 feet, 16-inch diameter casing was installed from the surface to 104 feet, and 12-inch diameter liner was installed from two feet above the surface to 184 feet. Perforations were installed in the liner from 104 to 182 feet. Cement was reportedly placed from the surface to a depth of 104 feet to serve as a casing seal; however, based on the diameter measurements given, it appears that the seal was placed between the 12-inch diameter liner and 16-inch diameter casing. Therefore, this casing seal is considered inadequate because the absence of a casing seal in the annular space surrounding the outer casing allows water to travel down the length of the outer casing and into the well. In a sanitary survey conducted on 3/16/04, DHS Drinking Water Program staff determined that there are no well construction deficiencies visible at the surface pertaining to drinking water protection. A copy of the well report for this well is included in the appendix materials.

2.3 Nature and Characteristics of the Aquifer

The aquifer supplying the drinking water to the City of John Day's Long Gulch Springs consists of fanglomerate of the Rattlesnake Formation. The nature of the aquifer (i.e. unconfined or confined, shallow or deep) is unknown.

Based on regional geologic reports, the aquifer supplying Long Gulch Springs consists of fanglomerate (conglomerate, sandstone, mudstone, and tuff) of the Rattlesnake Formation. There are few well logs for wells in this area, which makes it difficult to interpret the nature of the aquifer accurately. Since the spring water is derived from drainage collected in mine shafts, it is likely that the shafts are in contact with permeable zones of the Rattlesnake Formation through which the groundwater can travel and collect in the shafts. According to the water system's Water Use Report, the spring produced an average of 124,671 gpd in 2004.

The aquifer supplying the drinking water to Wells #3 and #4 of the City of John Day water system consists of layered volcanics of the Picture Gorge Basalt. In addition, Well #3 is also open to shallow alluvium of the John Day River. The first water-bearing zone below the casing seal is estimated to occur as shallow as approximately 168 feet below the surface in the layered volcanics and approximately 39 feet in the alluvium of Well #3.

Based on the well reports and regional geologic maps, the target aquifer supplying Wells #3 and #4 consists of layered basalt and interflow zones of the Picture Gorge Basalt Formation associated with the Columbia River Basalt Group. The driller reported the static water level (water level when well is not being pumped) as flowing artesian in Well #3 and 17 feet in Well #4. A groundwater study performed for the city in 2001 reported the static water level as 19.5 feet in 1994 in Well #3 and 31 feet in 1995 in Well #4. The driller indicated that water found during drilling was present at 250 feet in Well #3 and 168 feet in Well #4. In addition, in Well #3 water is also likely present in the gravels at 39 feet. Since the static water levels have risen above the water-bearing zones, the aquifer is assumed to be under pressure. **Therefore, we consider the target aquifer supplying Wells #3 and #4 to be a deep, confined, layered volcanic aquifer with a depth to the first water-bearing zone below the casing seal of approximately 168 feet. In addition, the John Day River Alluvium open to Well #3 is likely saturated.** Thickness of the water-bearing zone exploited in the target aquifer is estimated to be 12.5 feet. Thickness of the water-bearing zone exploited in the shallow, alluvial aquifer is estimated to be three feet.

3. Delineation Results

The purpose of the Drinking Water Protection Area (DWPA) delineation is to identify the area at the surface that overlies that part of the aquifer that contributes to the water system's well(s) and/or spring(s). Therefore, DHS Drinking Water Program staff have collected and reviewed data for the purpose of delineating the DWPA for your water system. The area included in the DWPA is designed to approximate the next 15 years of groundwater supply for the water. We have enhanced the usefulness of the DWPA map by identifying additional five-year, two-year, and one-year "Time-Of-Travel Zones" inside the DWPA.

The scope of work for this portion of the assessment included interviewing the water system operator, researching written reports, reviewing well logs, and establishing a base map of the delineated area. Based on the interference of Wells #3 and #4, the Enhanced Calculated Fixed Radius (volumetric) method was used to identify the DWPA for the deeper aquifer. Based on the interference of Well #3 with the John Day River, the Enhanced Calculated Fixed Radius (volumetric) method was also used to identify the DWPA for the shallow aquifer. Hydrogeologic mapping was used to delineate the DWPA for the spring. The resulting DWPAs for the City of John Day water system are shown in the Appendix as Figures 1a, 1b, and 1c. Specific information regarding the parameters used in the delineation process include; the delineation method, estimated pump rate, and aquifer characteristics can be found in Figures 1a, 1b, and 1c in the Appendix.

In most cases, three specific "Zones" have been identified for the spring(s) on the DWPA map presented in Figure 1b, (see appendix materials). The Zone 1 areas are the closest to the spring(s) and include the surface water drainage immediately upslope from the spring(s). This area represents the short-term water supply to the spring(s) where there is a high probability that rainfall infiltrating into the ground within this area discharges at the spring(s) in a relatively short time period. Therefore, it is reasonable to assume that accidents and/or high-risk land use practices which occur within Zone 1 areas could have a negative impact on drinking water quality.

The area(s) identified as Zone 2 represent the intermediate groundwater flow regime for the spring(s). These areas are surface water drainages directly adjacent to the Zone 1 areas which drain surface water toward the same general location as the surface water captured in the Zone 1 area(s). In an unconfined aquifer, groundwater will move in the same general direction as the slope of the land. Therefore, it is assumed that there is a potential for groundwater to move laterally from the Zone 2 area(s) into the adjacent Zone 1 area(s) and provide a significant amount of discharge to the spring(s).

The Zone 3 area(s) represents the origin of the long-term groundwater flow regime or regional recharge area for the spring(s) and thus, the long-term water supply. The Zone 3 boundaries were identified by mapping portions of the surface water drainages that are at a higher elevation than the spring(s) and were also in contact with Zone 1 and/or Zone 2. Surface water within the Zone 3 area is typically carried away from the spring(s), however the potential exists for the

underlying geologic structure of the area to dip (slope) back toward the spring(s) in the subsurface thus forcing groundwater to move in a different direction than surface water. Any groundwater moving from these areas toward the spring(s) is believed to take a longer period of time to reach the spring(s), therefore the occurrence of a contamination event in this area is not likely to have an immediate impact on water quality at the spring(s).

4. Sensitivity Analysis Results

After the Drinking Water Protection Area (DWPA) has been identified, aquifer susceptibility to potential contaminant sources inside the DWPA can be evaluated. Aquifer susceptibility is dependent on two factors, the natural environment's characteristics that permit migration of a contaminant into the aquifer (i.e., aquifer sensitivity) and the presence, distribution, and nature of the potential contaminant sources within the DWPA. It should be understood that the public water system's drinking water source cannot be susceptible to contamination, even if potential contaminant sources are present, unless the aquifer or the constructed source water intake are sensitive to contamination. Therefore, the intent of the sensitivity analysis is to identify those areas within the DWPA where the aquifer is most sensitive to contamination. The analysis is based on data collected or generated during the DWPA delineation process and is designed to meet the needs of other existing or developing programs such as Monitoring Waivers and the Groundwater Rule.

The results of the sensitivity analysis are provided in the tables that follow. Information and sensitivity ratings regarding the aquifer and water quality are provided in Table 4.1 while information and sensitivity ratings regarding the construction of the wells and springbox are provided in Table 4.2. Clarification of the ratings are provided as comments where appropriate.

Based on this analysis, the aquifer supplying the spring is considered highly sensitive because the mine shafts create a conduit flow and the aquifer is potentially unconfined. The unknown nature of the aquifer, the elevated nitrate concentrations, the inorganic chemical detections, the age of the springs, and the presence of highly permeable soils within the DWPA contribute to a moderate overall water system sensitivity. Sensitivity Analysis Tables begin on the next page.

Based on this analysis, the natural condition of the aquifer supplying the wells is not considered highly sensitive to contamination; however, the construction of Well #3 is considered highly sensitive because of the inappropriate casing seal depth and the construction of Well #4 is considered highly sensitive because of the inappropriate casing seal thickness. The likelihood of surface fractured bedrock within the DWPA, the suspicion of aquifer commingling, the elevated nitrate concentrations, the inorganic chemical detections, the age of Well #3, the proximity of surface water to both wells, and the presence of highly permeable soils within the DWPA contributes to a moderate overall water system sensitivity. Sensitivity Analysis Tables follow, beginning on the next page.

Table 4.1-A Aquifer Sensitivity Analysis for Spring.

Parameter	Sensitivity			Comments
	H	M	L	
Estimated flow rate.				124,671 gpd as per 2004 water use report.
Aquifer characteristics and geologic factors controlling spring.	✓			Mine shafts create a conduit flow within the Rattlesnake Formation.
Overburden thickness and characteristics at spring outflow.				Unknown
Fractured bedrock exposed at outflow.				Unknown
Traverse potential score.				Unknown. Nature of mine shafts and overlying sediments unknown.
Infiltration potential score.				Unknown. Likely low to moderate due to minimal precipitation and no irrigation.
Organic chemical detections.			✓	None detected.
Inorganic chemical detections.		✓		Arsenic, chromium, fluoride, nickel, selenium <50% MCL.
Source related coliform detections.			✓	None detected.
Nitrate concentrations (Drinking Water Standard = 10 mg/L).		✓		1.30 mg/L on 12/2/03
Number of wells within 500 ft of spring inside DWPA.			✓	Likely zero since the map does not show nearby buildings.
Number of wells within 200 ft of spring inside DWPA.			✓	Likely zero since the map does not show nearby buildings.
Specific conductance in :S/cm.				Unknown
Seasonal variations in flow, temperature, or specific conductivity.				No seasonal variation in flow. Temperature or specific conductivity unknown.
Highest soil sensitivity in Protection Area.	✓			Contributes to moderate aquifer sensitivity.
Surface water within 500 ft of spring inside DWPA.			✓	No
Other: Sodium detection >20 mg/L.			✓	No

Table 4.1-B Aquifer Sensitivity Analysis for Wells.

Parameter	Sensitivity			Comments
	H	M	L	
Depth to first water-bearing zone below casing seal.				High School Well: 250 ft. (reported WBZ). Gravel at 39 feet likely highly permeable. Jones Well: 168 ft.
Aquifer characteristics and hydraulic nature.			Y	Deep, confined, layered volcanic aquifer. Shallow gravel of John Day Alluvium also likely supplying water to Well #3.
Overburden thickness and characteristics.			Y	~168 – 250 feet of layered volcanics and John Day River alluvium.
Highest soil sensitivity in Protection Area.	Y			Contributes to moderate aquifer sensitivity.
Traverse potential score (10 = High).			Y Y	Well #3: Score = 5 Well #4: Score = 2
Infiltration potential score (10 = High).			Y Y	Well #3: Score = 3 Well #4: Score = 1
Organic chemical detections.			Y	
Inorganic chemical detections.		Y Y		Well #3: Barium, fluoride, cyanide <50% MCL. Well #4: Arsenic, barium, fluoride <50% MCL.
Source related coliform detections.			Y	Both wells: None detected.
Nitrate concentrations (Drinking Water Standard = 10 mg/L).		Y Y		Well #3: 1.20 mg/L on 12/18/01. Well #4: 1.30 mg/L on 12/2/03.
Fractured bedrock near surface in Protection Area.		Y		Likely.
Other wells score (Significant Risk = 400).			Y	Score = 31
Surface water within 500 feet of wellhead.		Y Y		Well #3: Canal/tributaries to John Day River ~60 ft, ~200 ft. Well #4: A pond <10 ft.
Other: Sodium Concentration > 20 mg/L		Y Y		Well #3: 68 mg/L Well #4: 57 mg/L. See paragraph following Table 4.1.

Sodium was detected at 68 mg/L in Well #3 in 1999 and 57 mg/L in Well #4 in 2002 (see “Other: Sodium Concentration >20 mg/L” in the above table). **Water systems having greater**

than 20 mg/L of Sodium in their drinking water source are encouraged to inform their customers of the presence of this constituent so that those individuals on a physician-prescribed low-sodium diet can inform their doctors of this source of sodium in their diet.

Table 4.2-A Springbox Construction Sensitivity Analysis				
Parameter	Sensitivity			Comments
	H	M	L	
Spring construction and/ or setback deficiencies from site visit.			✓	None reported/observed.
Commingling of aquifers suspected.			✓	No
Age of springbox.		✓		Constructed in the 1970s as per water system.

Table 4.2-B Well Construction Sensitivity Analysis.				
Parameter	Sensitivity			Comments
	H	M	L	
Casing depth.				Well #3: 59 ft. Well #4: 18-inch diameter casing 0 to 93 ft., 16-inch diameter casing 0 to 104 ft., 12-inch diameter liner +2 to 184 ft.
Casing seal depth.				Well #3: 20 ft. Well #4: 104 ft.
Well construction/setback deficiencies from site visit.			Y	Both wells: None reported/observed.
Well report information missing or unknown.			Y	Both wells: No
Casing seal information missing or unknown.			Y	Both wells: No
Casing seal material.			Y Y	Well #3: Concrete Well #4: Cement
Well open to multiple aquifers (commingling suspected).		Y	Y	Well #3: Yes Well #4: No
Casing seal construction.	Y Y			Well #3: Inadequate. Seal should extend to 47+ ft to prevent commingling. Well #4: Inadequate. Seal not placed between outer casing and borehole.
Age of well.		Y	Y	Well #3: Drilled in 1963. Well#4: Drilled in 1981.

5. Potential Contaminant Source Inventory

An inventory of potential contamination sources was performed within the Drinking Water Protection Area and the results are shown in Figure 2 (see appendix materials). The primary intent of the inventory was to identify and locate significant potential contaminant sources of concern. This inventory was conducted by reviewing applicable state and federal regulatory databases and land use maps, interviewing persons knowledgeable of the area, and conducting a windshield survey by driving through the drinking water protection area to field locate and verify as many of the potential contaminant source activities as possible. It is important to remember the sites and areas identified are only potential sources of contamination to the drinking water. Environmental contamination is not likely to occur when contaminants are used and managed properly.

5.1 Potential Contaminant Sources within the Two-Year Time-of-Travel Zone for the Wells

The delineated two-year time of travel zone is primarily dominated by residential housing. Seven potential contaminant source locations (Reference Numbers 1 through 8 on Figure 2A and Table 2 in the Appendix Materials) were identified in the two-year time-of-travel zone and include the high density housing areas, sewer lines, irrigated crop areas, a park, the fairgrounds, an RV park, and a pesticide/fertilizer storage, handling, mixing, & cleaning area. The potential contaminant sources within the two-year time-of-travel all pose a relatively higher to moderate risk to the drinking water supply with the exception of the RV park, which presents a lower risk. One of the potential contaminant sources, the sewer lines, has a high risk of transmitting micro-organisms to the groundwater.

5.2 Potential Contaminant Sources within the Five-Year and Fifteen-Year Time-of-Travel Zones for the Wells

The drinking water protection area within the five-year and fifteen-year time-of-travel zones is primarily occupied by commercial and residential land uses within the City of John Day and by agricultural land uses outside of the city limits. An additional 47 potential contaminant source locations were identified in this area which are detailed on Table 2 in the Appendix Materials and include several storm water injection wells, transportation corridors (highway, high-use roads, and railroads), several above and underground storage tanks, handlers of hazardous waste, a dry cleaners, grazing animals, dredge tailings, trucking operations, salvage/scrap yards, apartments, a wastewater treatment plant, unknown operations, cemeteries, RV/mini-storage storage facilities, state cleanup sites, parking lots, multiple auto repair and body shops, former

and current gas stations, the John Day fire station, a utility substation, a school, a machine shop, a photo shop, medical facility, and rural homes.

The potential contaminant sources within the five-year and fifteen-year time-of-travel all pose relatively higher to moderate risk to the drinking water supply with the exception of apartment complexes; the RV/mini-storage facilities; decommissioned, inactive, or upgraded underground storage tanks; rural homes, the school, and the fire station which present a lower risk. Area-wide potential sources such as the residential areas and transportation corridors extend from the two-year time-of-travel zone into the five and fifteen-year time-of-travel zones. These land uses occur throughout the drinking water protection area and are shown on Figure 2A in the location nearest to the well.

5.3 Potential Contaminant Sources within the DWPA for Long Gulch Spring

The drinking water protection area within the DWPA for Long Gulch Spring is primarily occupied by agricultural land use. An additional 2 potential contaminant source locations were identified in this area which are detailed on Table 2 in the Appendix Materials and include rural homes and an unknown operation. The potential contaminant sources within the DWPA all pose relatively higher to moderate risk to the drinking water supply with the exception the rural homes, which present a lower risk. Area-wide potential sources such as the residential areas and extend from the two-year time-of-travel zone into the five and fifteen-year time-of-travel zones. These land uses occur throughout the drinking water protection area and are shown on Figure 2B in the location nearest to the well.

6. Susceptibility of the Drinking Water Source

In general, Potential Contaminant Sources (PCSs) within the shorter time-of-travel zones pose a greater risk than those in the longer time-of-travel zones. Also of concern is the location and distribution of these sources with respect to high and moderately sensitive areas. Overlaying the PCS location map (Figure 2, appendix materials) on top of the sensitivity map for the water system provides a tool to determine the susceptibility of the community's drinking water supply to contamination from each PCS (see Figure 3, appendix materials).

6.1 Aquifer Susceptibility to Potential Contaminant Sources Inside the Drinking Water Protection Area.

Table 6.1, indicates the relationship between potential contaminant source risk, aquifer sensitivity, and estimated contaminant arrival time at the well, wellfield, and/or spring. The community can use the PCS location numbers on the inventory map in conjunction with the displayed aquifer sensitivity and relative risk rankings for each PCS from Table 2 (see appendix materials) to identify the susceptibility of the drinking water source to contamination from each PCS and take steps to reduce the risk accordingly.

We have attempted to quantify the relative susceptibility of the water system with regard to the PCSs present in the Drinking Water Protection Area (DWPA) using Table 6.1. Across the top of the table, each Time-of-Travel (TOT) zone and critical groundwater supply area (short-, intermediate-, and long-term) is subdivided to account for areas of high, moderate, and low sensitivity that may exist within the area. Potential contaminant source risk categories (high, moderate, and low) are listed down the left hand side of the table. The relative aquifer susceptibility to each PCS is demonstrated by the shading of each cell in the table. Cells that are shaded dark gray indicate a highly-susceptible condition, light gray shaded cells indicate a moderately-susceptible condition, and white cells indicate conditions of low susceptibility. The number in each cell indicates the number of potential contaminant sources that meet the conditions for that cell. Cells that do not contain a number indicate that there are no known potential contaminant sources that meet the conditions for the cell. Potential contaminant sources that meet the specific criteria for a cell in Table 6.1 can be identified by reviewing Table 2 in the attached appendix materials. The number of potential contaminant sources is totaled across the bottom of the table.

Table 6.1. City of John Day Spring Susceptibility as a Function of PCS Risk, Groundwater Supply Zone, and Aquifer Sensitivity.

	Zone 1 (Short-term)			Zone 2 (Intermediate-term)			Zone 3 (Long-term)		
	High	Mod	Low	High	Mod	Low	High	Mod	Low
High Risk PCSs									
Moderate Risk PCSs									
Low Risk PCSs			1			1			1
Total PCSs	1		1			1			1

The distribution of high, moderate, and low sensitivity areas inside the Drinking Water Protection Area can be determined using either soil sensitivity or the mapped distribution of Traverse Potential (TP) or Infiltration Potential (IP). In the case of the City of John Day water system, we have decided to rely upon the distribution of soil sensitivity throughout the DWPA since the nature of the aquifer and overlying sediments is unknown. Therefore, the soils overlying the aquifer represent the first line of natural protection for the aquifer.

During the potential contaminant source inventory, a total of two potential contaminant source locations and four potential contaminant sources were identified inside the DWPA. If any of these potential contaminant sources have been identified as an area-wide source, they have been evaluated with respect to each critical groundwater supply zone in which they occur. As a result, the total number of potential contaminant sources evaluated in the above susceptibility table may exceed the number identified on the potential contaminant source inventory map (Figure 2, appendix materials).

As indicated in the above table, two potential contaminant sources occur inside Zone 1, one of which extends into Zone 2 and Zone 3. Of the potential contaminant sources identified inside Zone 1, one is of moderate-risk and one is of low-risk. Based on the analysis results shown in the relative susceptibility table, we consider the City of John Day to be highly susceptible to the moderate-risk potential contaminant sources identified inside Zone 1 (Potential contaminant Source Reference No. 56 on Figure 3, appendix materials). **Therefore we recommend that this potential contaminant source not only be addressed in any Drinking Water Protection Plan but also in any Water System Emergency Response Plan.**

Table 6.1. City of John Day Wells #3 and #4 Susceptibility as a Function of PCS Risk, TOT Zone, and Aquifer Sensitivity.

	2-Yr TOT			2- to 5-Yr TOT			5- to 15-Yr TOT		
	High	Mod	Low	High	Mod	Low	High	Mod	Low
High Risk PCSs	3			13		2	28	1	
Moderate Risk PCSs	4			5	1		12		1
Low Risk PCSs	1			3			10		
Total PCSs	8			21	1	2	50	1	1

The distribution of high, moderate, and low sensitivity areas inside the Drinking Water Protection Area can be determined using either soil sensitivity or the mapped distribution of Traverse Potential (TP) or Infiltration Potential (IP). In the case of the City of John Day water system, we have decided to rely upon the distribution of soil sensitivity throughout the DWPA since the casing seals are inadequate. Therefore, the soils overlying the aquifer represent the first line of natural protection for the aquifer.

During the potential contaminant source inventory, a total of 54 potential contaminant source locations and 84 potential contaminant sources were identified inside the DWPA. If any of these potential contaminant sources have been identified as an area-wide source, they have been evaluated with respect to each time-of-travel zone in which they occur. As a result, the total number of potential contaminant sources evaluated in the above susceptibility table may exceed the number identified on the potential contaminant source inventory map (Figure 2, appendix materials).

As indicated in the above table, eight potential contaminant sources occur inside the 2-year TOT, 24 sources fall between the 2- and 5-year TOTs, and 52 sources have been identified between the 5- and 15-year TOTs. Of the potential contaminant sources identified inside the 2-year TOT, three are of high-risk, four are of moderate-risk, and one is of low-risk. Based on the analysis results shown in the relative susceptibility table, we consider the City of John Day to be highly susceptible to the moderate and high-risk potential contaminant sources identified inside the 2-year TOT (Potential contaminant Source Reference No. 1, 2, and 4-7 on Figure 3, in the attached appendix materials). **Therefore we recommend that these potential contaminant sources not only be addressed in any Drinking Water Protection Plan but also in any Water System Emergency Response Plan.**

The water supply also appears to be highly susceptible to most of the remaining high- and moderate-risk potential contaminant sources identified between the 2- and 15-year TOT zones. As a result of these analyses, we recommend that the water system develop a Drinking Water Protection Plan that addresses all high- and moderate-risk potential contaminant sources within the DWPA, beginning with those sources which represent the greatest susceptibility risk. At a minimum, the water system should work with representatives from those PCSs posing a

moderate- to high-susceptibility risk within the DWPA to (1) determine the level of environmental protection employed in the day-to-day operations of the facility and (2) identify any reasonable Best Management Practices that will lead to an overall reduction of contamination risk.

6.2-A Water System Susceptibility to Viral Contaminant Sources within the Short-Term (Zone 1) Groundwater Supply Area

The DWPA identifies the short-term groundwater supply for the City of John Day spring, which we consider roughly equivalent to a two-year water supply. The two-year time frame is used as a conservative estimate of the survival time for some viruses. Based on the assessment results, the aquifer supplying the spring is considered highly sensitive because the mine shafts create a conduit flow and the aquifer is potentially unconfined. **Since a viral contaminant source (septic systems) has been identified within the DWPA, we consider the water system to be susceptible to viral contamination.** Therefore, it is in the water system's best interest to reduce the potential for future viral contamination by complying with all Oregon Department of Human Services setback standards related to public drinking water supply sources.

6.2-B Water System Susceptibility to Viral Contaminant Sources within the Two-Year Time-of-Travel Zone.

The area within the two-year TOT roughly identifies the next two years of groundwater supply for the water system. The two-year time frame is used as a conservative estimate of the survival time for some viruses. Viral contaminant sources (sewer lines and boarding stables) were identified inside the two-year TOTs. **Based on the assessment results, the natural condition of the aquifer supplying the wells is not considered highly sensitive to contamination; however, the construction of Well #3 is considered highly sensitive because of the inappropriate casing seal depth and the construction of Well #4 is considered highly sensitive because of the inappropriate casing seal thickness. Therefore, we consider the City of John Day water supply to be susceptible to viral contamination.** Regardless of the outcome of this assessment, it is in the water system's best interest to reduce the potential for future viral contamination through compliance with all Oregon Department of Human Services setback standards related to public drinking water supply sources.

7. Conclusions

The aquifer supplying Long Gulch Spring consists of fanglomerate of the Rattlesnake Formation. The nature of the aquifer is unknown; however, the mine shafts create a conduit flow and the aquifer is potentially unconfined. The aquifer supplying Wells #3 and #4 is confined and consists of layered volcanics of the Picture Gorge Basalt Formation of the Columbia River Basalt Group. In addition, Well #3 is also open to shallow alluvium of the John Day River. Assessment results indicate that the water system would be highly sensitive to a contamination event inside the identified Drinking Water Protection Areas. The presence of several high- and moderate-risk potential contaminant sources within the protection areas was confirmed through a potential contaminant source inventory. Under a “worst case” scenario, where it is assumed that nothing is being done to protect groundwater quality at the identified potential contaminant sources, the assessment results indicate that the water system would be highly susceptible to most of the identified high- and moderate-risk potential contaminant sources. In addition, the assessment results indicate that, at this time, the water system is considered susceptible to viral contamination.

8. Recommended Use of the Source Water Assessment Report

The costs associated with contaminated drinking water are high. Developing an approach to protect that resource, such as a Drinking Water Protection Plan, can reduce the potential for contamination of the local drinking water supply. This report contains a summary of the local geology and well construction issues as they pertain to the quality of your drinking water source. We have identified the area we believe to be most critical to preserving your water quality (the Drinking Water Protection Area) and have identified potential sources of contamination within that area. In addition, we provide you with recommendations, i.e., Best Management Practices, regarding the proper use and practices associated with some common potential contamination sources (see appendix materials). We believe public awareness is a powerful tool for protecting drinking water and that the information provided in this report will help you increase local awareness regarding the relationship between land use activities and drinking water quality. To that end, the process for developing a Drinking Water Protection Plan can be summarized as follows:

Assessment Phase (Source Water Assessment Provided by DHS and DEQ)

- Delineate the area that serves as the source of the public water supply (Drinking Water Protection Area (DWPA))
- Inventory the potential risks or sources of contamination within the DWPA
- Determine the areas most susceptible to contamination

Protection Phase (performed by the water system or community)

- Assemble a local Drinking Water Protection Team
- Enhance the Source Water Assessment if necessary
- Develop a plan to reduce the risk of contamination (protect the resource)
- Develop a contingency plan to address the potential loss of the drinking water supply
- Certify (optional) and implement the Drinking Water Protection Plan

The assessment phase was funded by the federal Safe Drinking Water Act. Its purpose is to supply the water system with the information necessary to develop a Drinking Water Protection Plan. In Oregon, development of a protection plan is voluntary.

Prior to moving into the protection phase, DEQ recommends the inventory presented in this document be reviewed in detail to clarify the presence, location, operational practices, actual risks, etc., of the identified facilities and land use activities. The Source Water Assessment (SWA) inventory should be regarded as a preliminary review of potential sources of contamination within the drinking water protection area. Resources within the community

should be used to do an “enhanced inventory” to refine this preliminary list of potential contaminant sources.

It is also important to remember that not all of the inventoried activities will need to be addressed if you choose to develop a Drinking Water Protection Plan. When developing a protection plan, potential contaminant sources which pose little or no threat to your drinking water supply can be screened out. For example, if any of the land use activities are conducted in a manner that already significantly reduces the risk of a contamination release, the facility would not need to re-evaluate their practices based on drinking water protection “management”. One of the goals for developing a plan based on the inventory results is to address those land use activities that do pose high or moderate risks to your public water supply. The system should target these facilities with greater levels of education and technical assistance to minimize the risk of contamination.

Limited technical assistance is available through the DEQ and Drinking Water Program at DHS for water systems that choose to move beyond the assessments and voluntarily develop a Drinking Water Protection Plan. By using the results of the assessment, the water system/community can form a Drinking Water Protection Team comprised of individuals that have a stake in the plan’s implementation.

Forming a local team to help with the development of a protection plan is very important. Oregon’s drinking water protection approach relies upon the concept of “community based protection”, as are many other water quality programs. This simply refers to the concept of allowing local control and decision-making to implement the water quality protection effort. Community-based protection is successful only with significant local citizen stakeholder involvement. Community-based protection can draw on the knowledge and successful adaptive practices within the area. Landowners generally know best how to achieve water resource restoration and protection as long as a thorough explanation of the problem is provided, the objectives to solve the problem are clearly defined, and technical assistance is available.

In community-based protection, citizens have more control and are therefore more likely to participate in the program and be more willing to assist with the educational and outreach effort which will make the plan successful. We recommend that the protection plan be developed so as to minimize any burdens on individual property owners, but maximize the equity in responsibility for reducing the risks of future contamination.

Protecting the drinking water supply in a community can also be a very effective way to encourage all citizens to participate in issues which directly affect everyone in that community. This often leads to more public involvement in other significant local decisions concerning future livability issues, e.g., land use planning. In communities already developing and implementing Drinking Water Protection Plans, the process has served to bring many diverse interests together on a common goal and strengthen the local rural and urban relationships through communication and increased understanding. The risks and sources of water quality problems are not only from industries, farmers, and managed forest, but every individual living, commuting, and working in that area.

Communities/water systems interested in developing Drinking Water Protection Plans may contact the Department of Environmental Quality (503-229-5413) or the DHS Drinking Water Program (541-726-2587) for further information.

Appendix Materials

References

Figures

Inventory of Potential Contaminant Sources

Well Reports

Parameters Used in Delineation Model

Groundwater Fact Sheet

BMPs for Activities Commonly found in Drinking Water Protection Areas

Drinking Water Protection in Oregon

Source Water Assessment Methodology

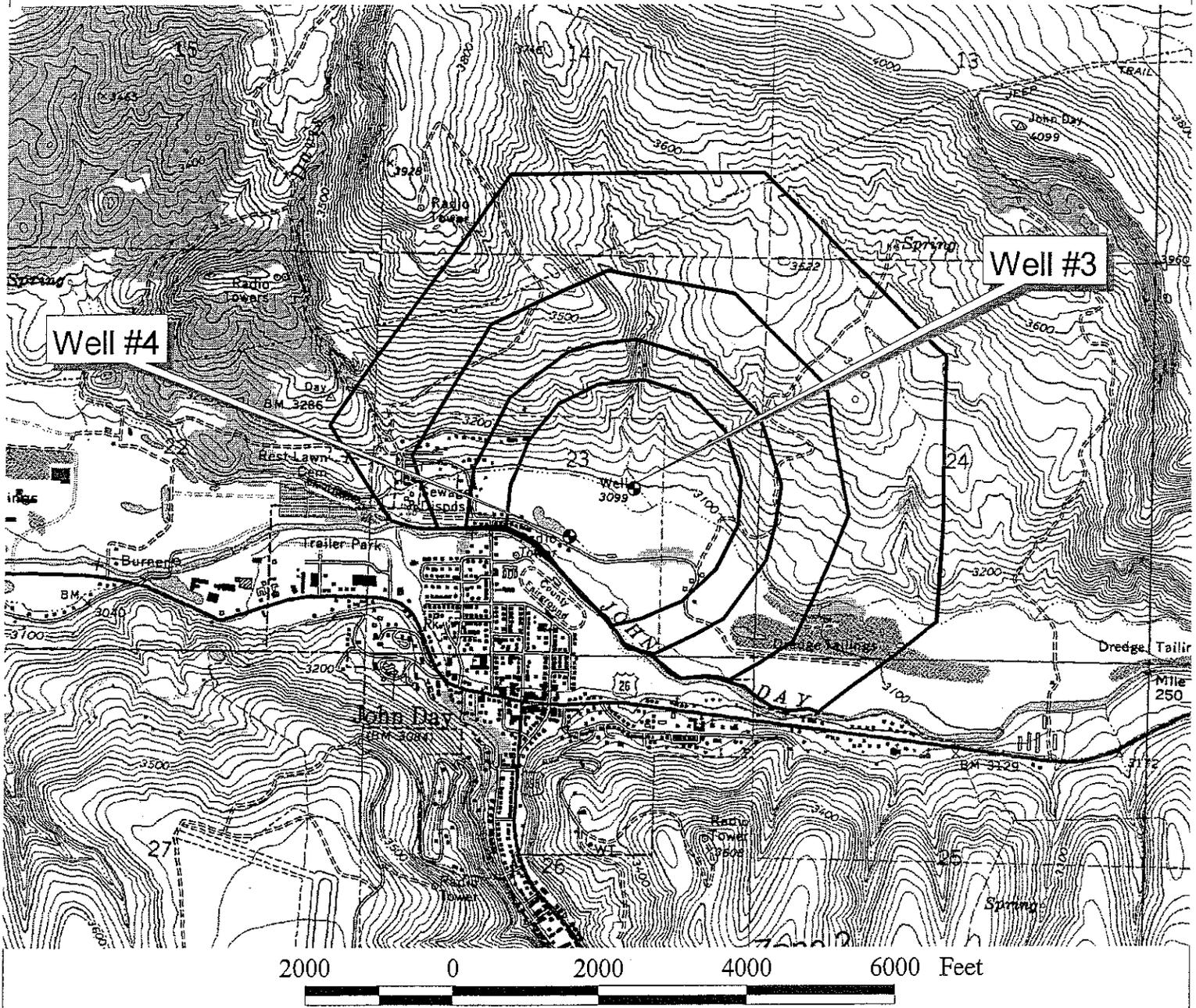
Additional copies of the appendix materials are available upon written request to the following address:

**Groundwater Coordinator
Drinking Water Program
Department of Human Services
444 A Street
Springfield, OR 97477**

References

- Bela, J.L., 1981. Reconnaissance Geologic Map of the Late Cenozoic Sediments and Volcanic Rocks Overlying Columbia River Basalt Group in Northeastern Oregon. Canyon City, Oregon, 1° x 2° Quadrangle (north portion). Oregon Department of Geology and Mineral Industries.
- Blandford, T.N., and Huyakorn, P.S., 1991. WHPA: A Modular Semi-Analytical Model for the Delineation of Wellhead Protection Areas, Version 2.0, U.S. Environmental Protection Agency, Office of Groundwater Protection. Contract No. 68-08-0003.
- Dyksterhuis, E.L., 1981. Soil Survey of Grant County, Oregon, Central Part. U.S. Department of Agriculture, Soil Conservation Service.
- National Oceanic and Atmospheric Administration (NOAA), 1982. Monthly Normals of Temperature, Precipitation, and Heating and Cooling Degree Days 1951-80 Oregon, Climatology of the United States No. 81 (By State).
- Stewart, S. and Nelson, D., 1996. Oregon Wellhead Protection Program Guidance Manual. Oregon Department of Environmental Quality (available at <http://www.deq.state.or.us/wq/dwp/dwphome.htm>).
- Stewart, S. and Nelson, D., 1999. Oregon Source Water Assessment Plan. Oregon Department of Environmental Quality.
- Walker, G.W. and MacLeod, N.S., 1991. Geologic Map of Oregon. U.S. Geological Survey.

City of John Day - Well #3 (Shallow Aquifer) Figure 1a Drinking Water Protection Area



Scale 1: 24,000

Drinking Water Protection Area (DWPA)
1, 2, 5, and 15 Year Time of Travel (TOT)
Enhanced CFR Method
Shallow, Alluvial Aquifer

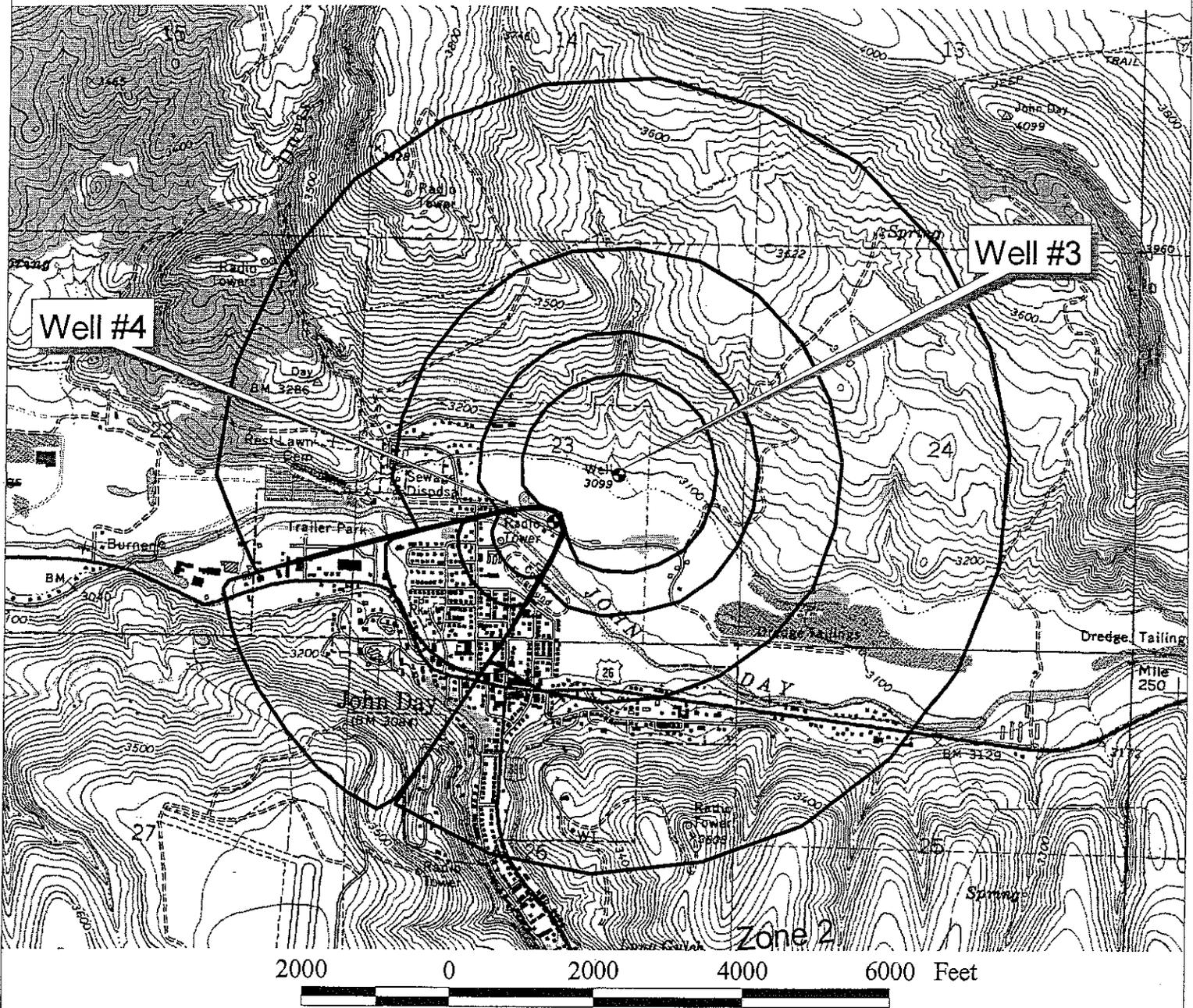
Well #3 Location (WGS84 Datum):
 Grant County
 T. 13 S., R. 31 E., Sec. 23
 Lat. 44° 25' 25.840"N,
 Long. 118° 56' 49.409"W

Model Parameters
 Production Interval (ft): 3
 Effective Porosity: 0.23
 Usage (gal/day): 126,000

Prepared by: Amy Parmenter 4/1/05
 Project Manager: Dennis Nelson, RG# 1224
 PWS#: 4100410



City of John Day - Wells #3 and #4 (Deeper Aquifer) Drinking Water Protection Area



Scale 1: 30,000

Drinking Water Protection Area (DWPA)
1, 2, 5, and 15 Year Time of Travel (TOT)
Enhanced CFR Method
Deeper, Volcanic Aquifer

Model Parameters
 Production Interval (ft): 12.5
 Effective Porosity: 0.25
 Usage (gal/day): 385,213 total

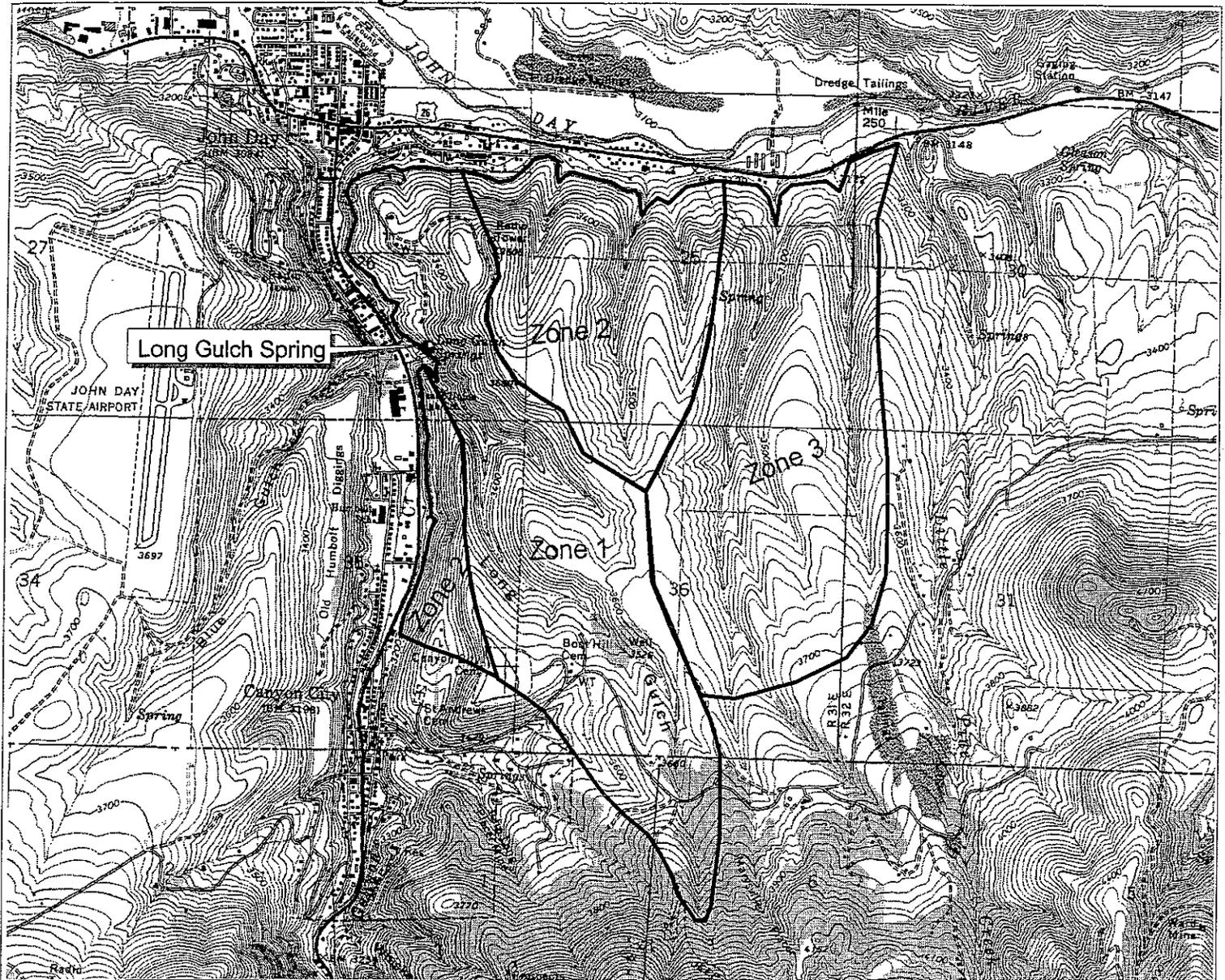
Well Locations (WGS84 Datum):
 Grant County
 T. 13 S., R. 31 E., Sec. 23
 Well #3: Lat. 44° 25' 25.840"N,
 Long. 118° 56' 49.409"W
 Well #4: Lat. 44° 25' 19.424"N,
 Long. 118° 57' 01.379"W

Prepared by: Amy Parmenter 4/1/05
 Project Manager: Dennis Nelson, RG# 1224
 PWS#: 4100410



City of John Day - Spring Drinking Water Protection Area

Figure 1c



3000 0 3000 6000 Feet

1:30,000

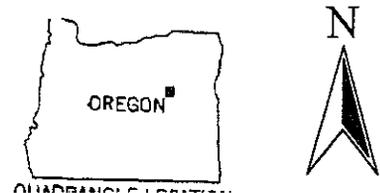
Drinking Water Protection Area (DWPA) Hydrogeologic Mapping Method

Zones reflect approximate time-related groundwater flow to the spring:

Zone 1: Short-term groundwater flow regime.

Zone 2: Intermediate-term groundwater flow regime.

Zone 3: Long-term groundwater flow regime.

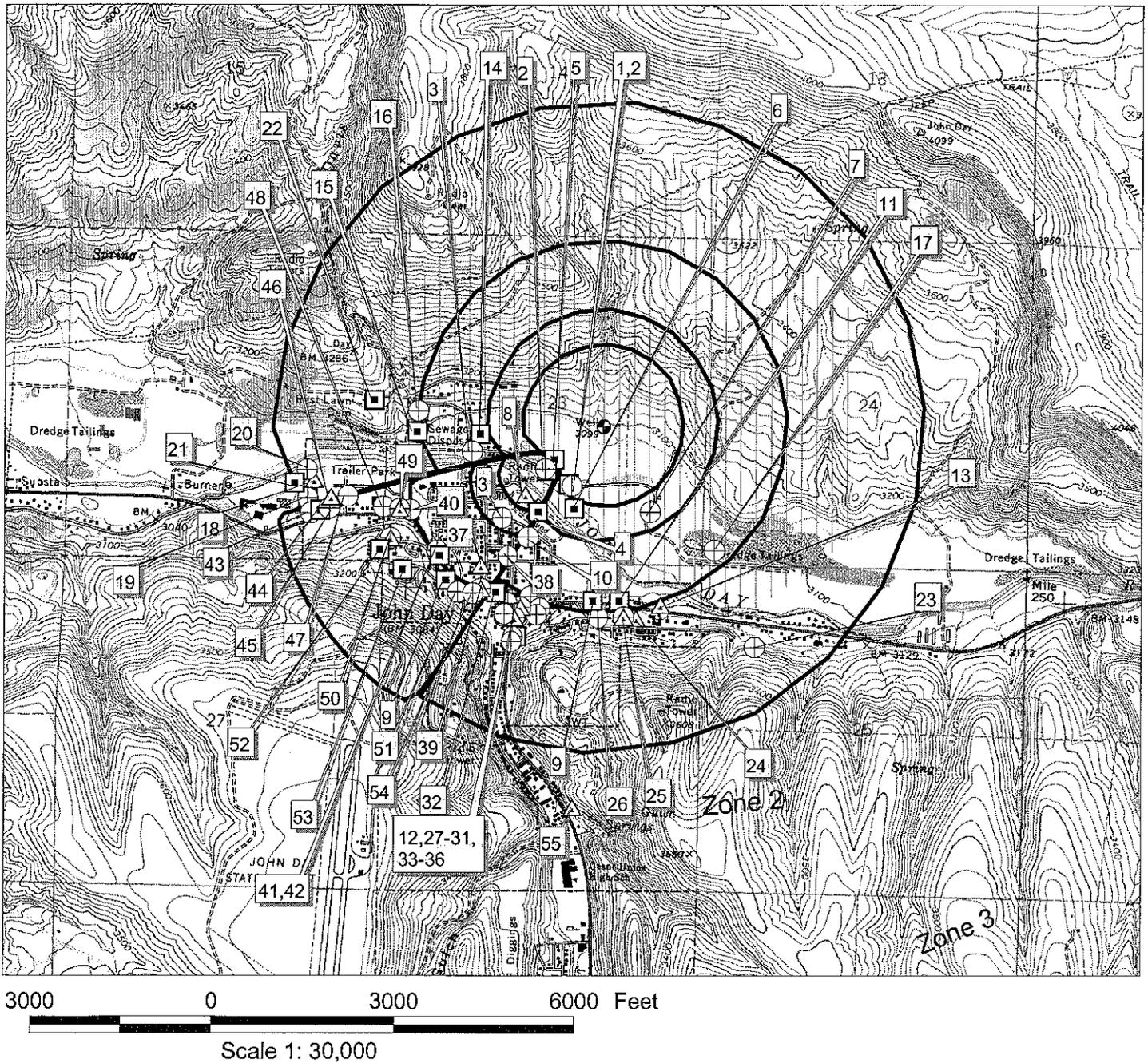


Spring Location (WGS84 Datum):
Grant County
T13S R31E Sec. 26
Lat. 44° 24' 22.973"N
Long. 118° 56' 48.185"W

Prepared by: Amy Parmenter 3/29/05
Project Manager: Dennis Nelson, RG#1224
File # 4100410

USGS John Day, OR Quadrangle
(part section) 7.5' Series (Topographic)

Figure 2A: City of John Day - Wells #3 & #4 Potential Contaminant Sources



Drinking Water Protection Area (DWPA)
1, 2, 5, and 15 year Time of Travel (TOT)
Enhanced CFR Method

Potential Contaminant Sources

- ⊕ Higher Relative Risk
- ▣ Moderate Relative Risk
- △ Low Relative Risk

Delineations reflect the deep aquifer;
shallow aquifer for well 3 shown as
vertical line pattern.

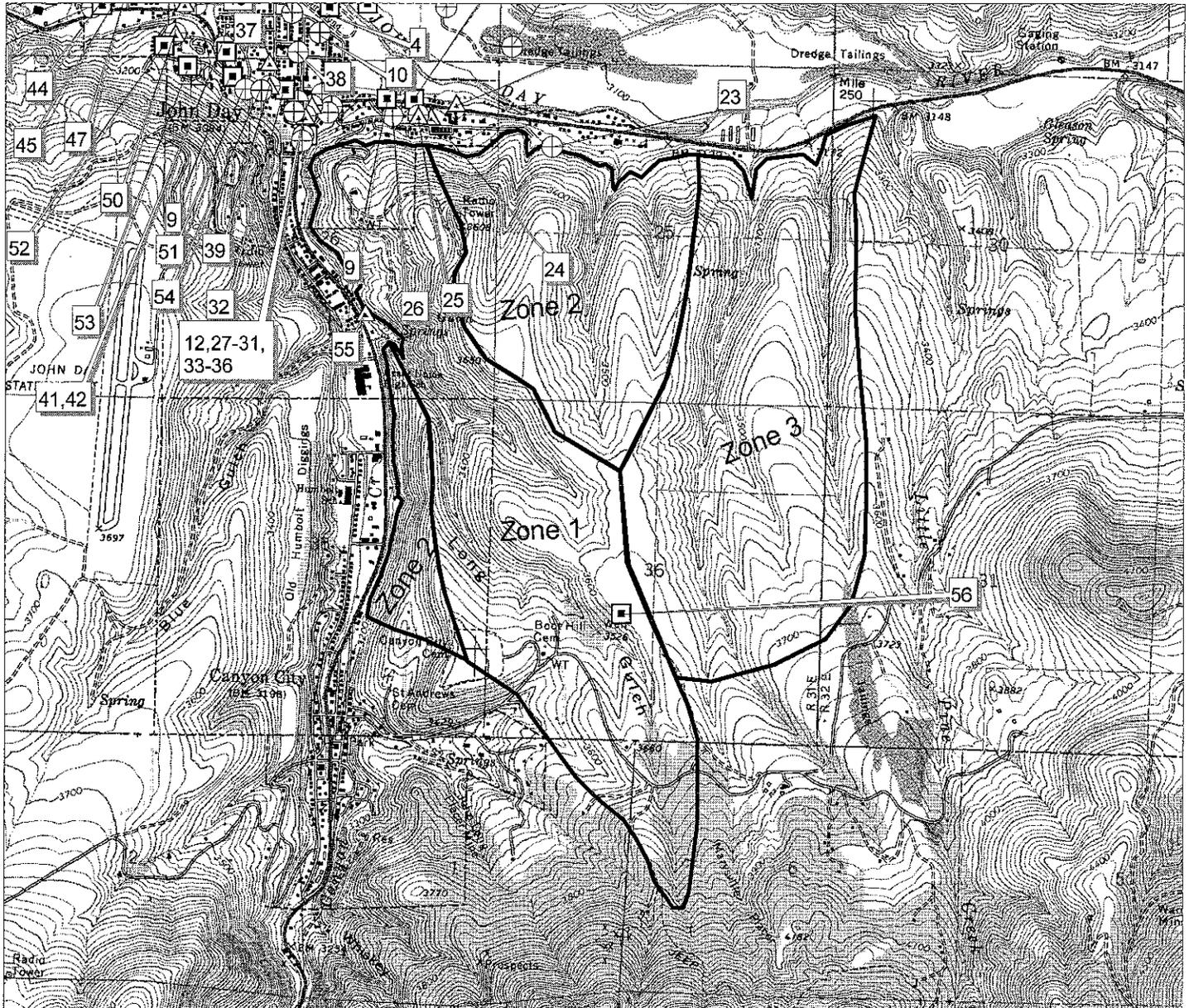
Prepared by: KG
Project Manager: DN RG# 1224
File# 4100410

Note: Sites and areas noted in this figure are potential sources of contamination to the drinking water identified by Oregon drinking water protection staff. Environmental contamination is not likely to occur when chemicals are used and managed properly.

Numbers indicate potential contaminant sources which are explained in the Appendix.



Figure 2B: City of John Day - Spring Potential Contaminant Sources



3000 0 3000 6000 Feet
 Scale 1: 30,000

Drinking Water Protection Area (DWPA)
Hydrogeological Mapping Method

Prepared by: KG
 Project Manager: DN RG# 1224
 File# 4100410



Potential Contaminant Sources

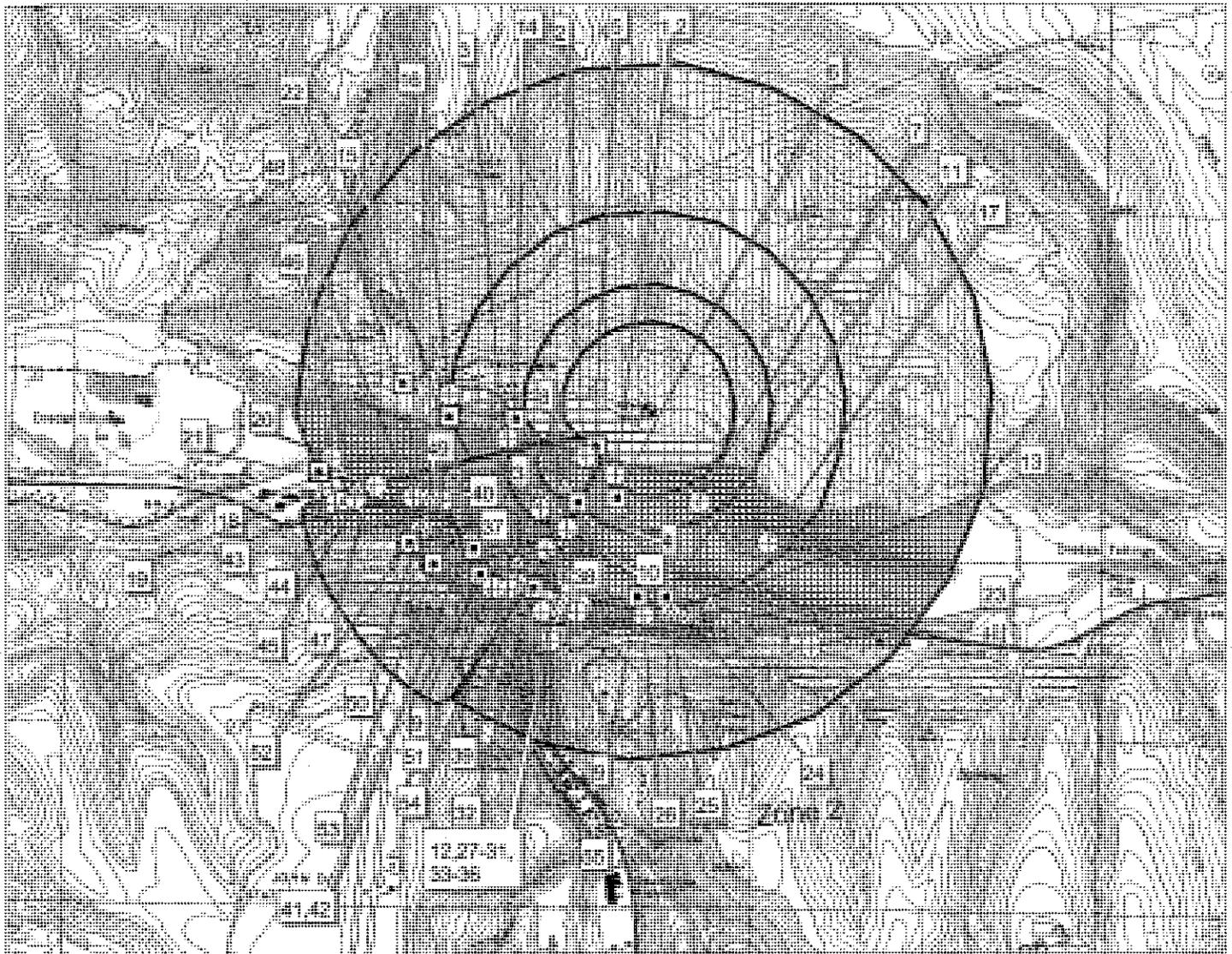
- ⊕ Higher Relative Risk
- ▣ Moderate Relative Risk
- △ Low Relative Risk

Note: Sites and areas noted in this figure are potential sources of contamination to the drinking water identified by Oregon drinking water protection staff. Environmental contamination is not likely to occur when chemicals are used and managed properly.

Numbers indicate potential contaminant sources which are explained in the Appendix.



Figure 3a: City of John Day-Wells Drinking Water Source Susceptibility



3000 0 3000 6000 9000 Feet

Scale 1: 30,000

Drinking Water Protection Area (DWPA) 1, 2, 5, and 15 Year Time of Travel (TOT) Enhanced CFR Method

Potential Contaminant Sources

- ⊕ Higher Relative Risk
- ▣ Moderate Relative Risk
- △ Low Relative Risk

Sensitivity Analysis

- ▨ High Soil Sensitivity
- ▤ Medium Soil Sensitivity
- ▧ Low Soil Sensitivity

Note: Sites and areas noted in this figure are potential sources of contamination to the drinking water as identified by Oregon Drinking Water Protection Staff.

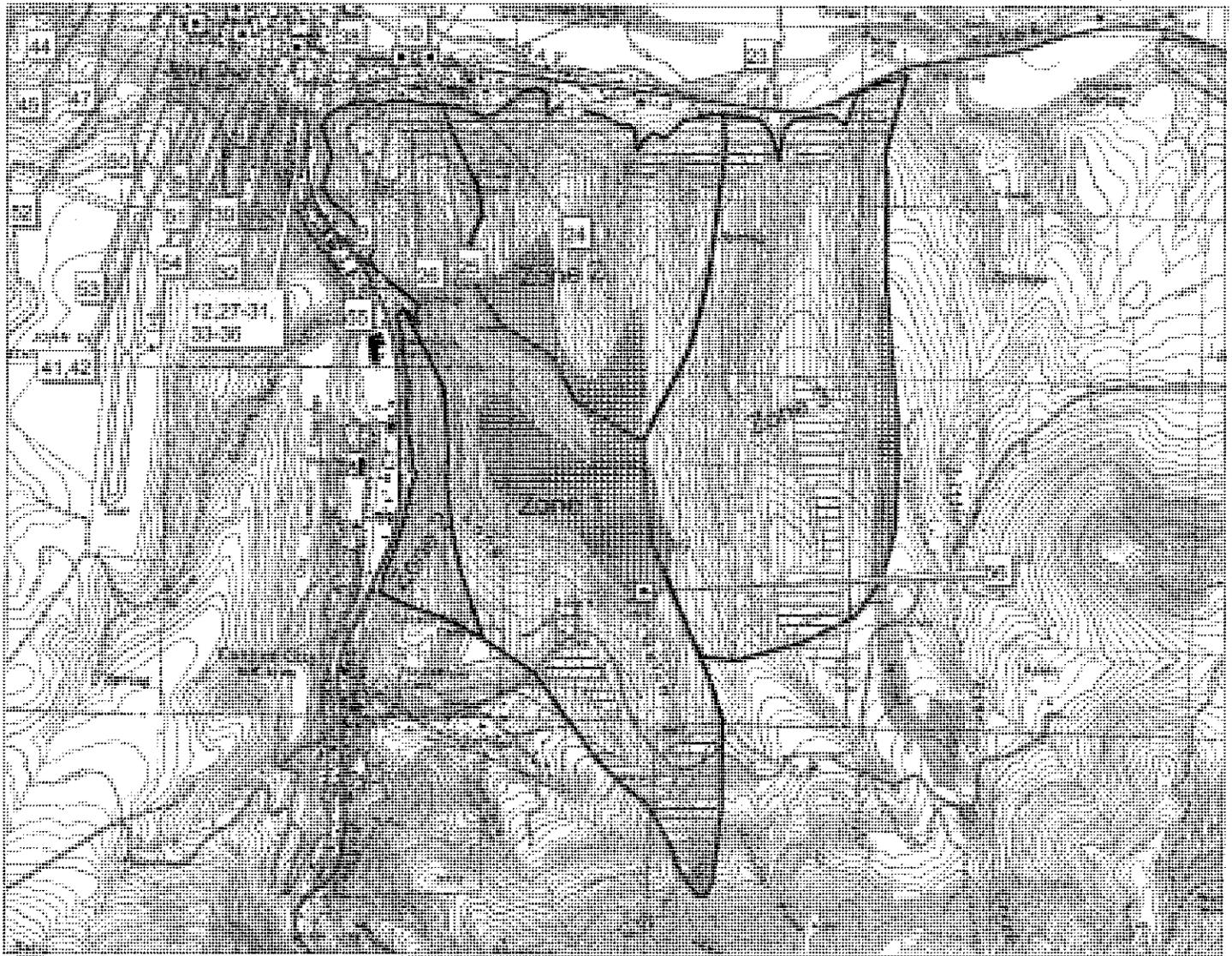
Environmental contamination is not likely to occur when chemicals are used and managed properly.

Features or activities that are identified as high or moderate risk that occur within an area designated as high or moderate sensitivity pose a greater risk to drinking water quality than those in areas of low sensitivity.

Numbers indicate potential contaminant sources indexed to the Appendix.



Figure 3b: City of John Day-Spring Drinking Water Source Susceptibility



4000 0 4000 8000 Feet

Scale 1: 30,000

Drinking Water Protection Area (DWPA) Hydrogeological Mapping Method

Potential Contaminant Sources

- ⊕ Higher Relative Risk
- ▣ Moderate Relative Risk
- △ Low Relative Risk

Sensitivity Analysis

- ▨ High Soil Sensitivity
- ▤ Medium Soil Sensitivity
- ▩ Low Soil Sensitivity

Note: Sites and areas noted in this figure are potential sources of contamination to the drinking water as identified by Oregon Drinking Water Protection Staff.

Environmental contamination is not likely to occur when chemicals are used and managed properly.

Features or activities that are identified as high or moderate risk that occur within an area designated as high or moderate sensitivity pose a greater risk to drinking water quality than those in areas of low sensitivity.

Numbers indicate potential contaminant sources indexed to the Appendix.



**APPENDIX - INVENTORY OF POTENTIAL CONTAMINANT SOURCES
JOHN DAY, CITY OF - PWS # 4100410
OREGON SOURCE WATER ASSESSMENT**

Inventory Results

Table 1. Summary of Potential Contaminant Sources by Land Use

Table 2. Inventory Results - List of Potential Contaminant Sources

Table 3. Results of Regulatory Database Search

Notes for Tables:

Sites and areas identified in these Tables are only potential sources of contamination to the drinking water. Environmental contamination is not likely to occur when contaminants are used and managed properly.

Total number of sources listed in Table 1 in the DWPA may not add up to the total number of potential contaminants sources in Table 2 because more than one type of potential contaminant source may be present at any given facility.

Data collected by Sue Gries Oregon DEQ on 5/18/2005.

Information from applicable state and federal regulatory databases is current as of 9/27/2004.

Acronyms:

AST - Aboveground Storage Tank
DC - DEQ's Dry Cleaner database
DEQ - Oregon Department of Environmental Quality
DWPA - Drinking Water Protection Area
ECSI - DEQ's Environmental Cleanup Site Information database
HWIMSY - DEQ's Hazardous Waste Information Management System database
LUST - DEQ's Leaking Underground Storage Tank database
NPDES - National Pollution Discharge Elimination System
PCS - Potential Contaminant Source
PWS - Public Water System
SFM - State Fire Marshall's database of hazardous materials
SIS - DEQ's Source Information System database (includes WPCF & NPDES permits)
SWMS - DEQ's Solid Waste Management System database
UST - DEQ's Underground Storage Tank database or Underground Storage Tank
WPCF - Water Pollution Control Facility
WRD - Oregon Water Resources Division database for water rights information

TABLE 1. SUMMARY OF POTENTIAL CONTAMINANT SOURCES BY LAND USE

**PWS # 4100410 JOHN DAY, CITY OF
Residential/Municipal Land Uses**

Potential Contamination Source	Notes	Relative Risk Level	Total in DWPA
Airport - Maintenance/Fueling Area		Higher	0
Apartments and Condominiums		Lower	1
Campgrounds/RV Parks	(1)	Lower	1
Cemeteries - Pre-1945		Moderate	1
Drinking Water Treatment Plants		Moderate	0
Fire Station		Lower	1
Fire Training Facilities		Moderate	0
Golf Courses		Moderate	0
Housing - High Density (> 1 House/0.5 acres)		Moderate	2
Landfill/Dumps	(1)	Higher	0
Lawn Care - Highly Maintained Areas		Moderate	0
Motor Pools		Moderate	0
Parks		Moderate	1
Railroad Yards/Maintenance/Fueling Areas		Higher	0
Schools		Lower	1
Septic Systems - High Density (> 1 system/acre)	(1)	Higher	0
Sewer Lines - Close Proximity to PWS	(1)	Higher	2
Utility Stations - Maintenance Transformer Storage		Higher	1
Waste Transfer/Recycling Stations	(1)	Moderate	0
Wastewater Treatment Plants/Collection Stations	(1)	Moderate	1
Other			0

NOTES:

Sites and areas identified in this Table are only potential sources of contamination to the drinking water. Environmental contamination is not likely to occur when contaminants are used and managed properly.

(1) - Potential source of microbial contamination

(2) - Drip irrigated crops, such as vineyards and some vegetables, are considered lower risk than spray irrigation

(3) - For groundwater public water systems, septic systems located within the 2-year time-of-travel (TOT) are considered moderate risks.

TABLE 1. SUMMARY OF POTENTIAL CONTAMINANT SOURCES BY LAND USE

**PWS # 4100410 JOHN DAY, CITY OF
Commercial/Industrial Land Uses**

Potential Contamination Source	Notes	Relative Risk Level	Total in DWPA
Automobiles - Body Shops		Higher	4
Automobiles - Car Washes		Moderate	0
Automobiles - Gas Stations		Higher	3
Automobiles - Repair Shops		Higher	2
Boat Services/Repair/Refinishing		Higher	0
Cement/Concrete Plants		Moderate	0
Chemical/Petroleum Processing/Storage		Higher	1
Dry Cleaners		Higher	2
Electrical/Electronic Manufacturing		Higher	0
Fleet/Trucking/Bus Terminals		Higher	6
Food Processing		Moderate	0
Furniture/Lumber/Parts Stores		Moderate	0
Home Manufacturing		Higher	0
Junk/Scrap/Salvage Yards		Higher	1
Machine Shops		Higher	1
Medical/Vet Offices	(1)	Moderate	1
Metal Plating/Finishing/Fabrication		Higher	0
Mines/Gravel Pits		Higher	1
Office Buildings/Complexes		Lower	0
Parking Lots/Malls (> 50 Spaces)		Higher	2
Photo Processing/Printing		Higher	1
Plastics/Synthetics Producer		Higher	0
Research Laboratories		Higher	0
RV/Mini Storage		Lower	3
Wood Preserving/Treating		Higher	0
Wood/Pulp/Paper Processing and Mills		Higher	0
Other: - listed as handler of hazardous waste (HWIMSY)		Moderate	1

NOTES:

Sites and areas identified in this Table are only potential sources of contamination to the drinking water. Environmental contamination is not likely to occur when contaminants are used and managed properly.

(1) - Potential source of microbial contamination

(2) - Drip irrigated crops, such as vineyards and some vegetables, are considered lower risk than spray irrigation

(3) - For groundwater public water systems, septic systems located within the 2-year time-of-travel (TOT) are considered moderate risks.

TABLE 1. SUMMARY OF POTENTIAL CONTAMINANT SOURCES BY LAND USE

PWS # 4100410 JOHN DAY, CITY OF

Agricultural/Forest Land Uses

Potential Contamination Source	Notes	Relative Risk Level	Total in DWPA
Auction Lots	(1)	Higher	0
Boarding Stables	(1)	Moderate	1
Confined Animal Feeding Operations (CAFOs)	(1)	Higher	0
Crops - Irrigated (inc. orchards, vineyards, nurseries, greenhouses)	(2)	Moderate	1
Crops - Nonirrigated (inc. Christmas trees, grains, grass seed, pasture)		Lower	0
Farm Machinery Repair		Higher	0
Grazing Animals (> 5 large animals or equivalent/acre)	(1)	Moderate	1
Lagoons/Liquid Wastes	(1)	Higher	0
Land Application Sites	(1)	Moderate	0
Managed Forest Land - Broadcast Fertilized Areas		Lower	0
Managed Forest Land - Clearcut Harvest (< 35 yrs.)		Moderate	0
Managed Forest Land - Partial Harvest (< 10 yrs.)		Moderate	0
Managed Forest Land - Road Density (> 2 mi./sq. mi.)		Moderate	0
Pesticide/Fertilizer/Petroleum Storage, Handling, Mixing, & Cleaning Ar		Higher	1
Recent Burn Areas (< 10 yrs.)		Lower	0
Managed Forest Lands - Status Unknown		Moderate	0
Other			0

NOTES:

Sites and areas identified in this Table are only potential sources of contamination to the drinking water. Environmental contamination is not likely to occur when contaminants are used and managed properly.

(1) - Potential source of microbial contamination

(2) - Drip irrigated crops, such as vineyards and some vegetables, are considered lower risk than spray irrigation

(3) - For groundwater public water systems, septic systems located within the 2-year time-of-travel (TOT) are considered moderate risks.

TABLE 1. SUMMARY OF POTENTIAL CONTAMINANT SOURCES BY LAND USE

PWS # 4100410 JOHN DAY, CITY OF

Miscellaneous Land Uses

Potential Contamination Source	Notes	Relative Risk Level	Total in DWPA
Above Ground Storage Tanks - Excluding Water		Moderate	9
Channel Alterations - Heavy		Lower	0
Combined Sewer Outfalls	(1)	Lower	0
Stormwater Outfalls	(1)	Lower	0
Composting Facilities	(1)	Moderate	0
Historic Gas Stations		Higher	3
Historic Waste Dumps/Landfills	(1)	Higher	0
Homesteads - Rural - Machine Shops/Equipment Maintenance		Higher	0
Homesteads - Rural - Septic Systems (< 1/acre)	(1)(3)	Lower	1
Injection/Dry Wells, Sumps - Class V UICs	(1)	Higher	2
Kennels (> 20 Pens)	(1)	Lower	0
Military Installations		Higher	0
Random Dump Sites		Moderate	0
River Recreation - Heavy Use (inc. campgrounds)	(1)	Lower	0
Sludge Disposal Areas	(1)	Moderate	0
Stormwater Retention Basins	(1)	Moderate	0
Transmission Lines - Right-of-Ways		Lower	0
Transportation - Freeways/State Highways/Other Heavy Use Roads		Moderate	2
Transportation - Railroads		Moderate	0
Transportation - Right-Of-Ways - Herbicide Use Areas		Moderate	0
Transportation - River Traffic - Heavy		Lower	0
Transportation - Stream Crossing - Perennial		Lower	0
UST - Confirmed Leaking Tanks - DEQ List		Higher	0
UST - Decommissioned/Inactive		Lower	6
UST - Nonregulated Tanks (< 1,100 gals or Large Heating Oil Tanks)		Higher	0
UST - Not Upgraded and/or Registered Tanks		Higher	0
UST - Upgraded/Registered - Active		Lower	1
UST - Status Unknown		Higher	9
Upstream Reservoirs/Dams		Lower	0
Wells/Abandoned Wells		Higher	0
Large Capacity Septic Systems (serves > 20 people) - Class V UICs	(1)	Higher	0
Construction/Demolition Areas		Moderate	0
Other: - Unknown operation		Moderate	2
Other: - State cleanup site (ECSI)		Higher	3

NOTES:

Sites and areas identified in this Table are only potential sources of contamination to the drinking water. Environmental contamination is not likely to occur when contaminants are used and managed properly.

(1) - Potential source of microbial contamination

(2) - Drip irrigated crops, such as vineyards and some vegetables, are considered lower risk than spray irrigation

(3) - For groundwater public water systems, septic systems located within the 2-year time-of-travel (TOT) are considered moderate risks.

TABLE 2. INVENTORY RESULTS - LIST OF POTENTIAL CONTAMINANT SOURCES

PWS#	4100410	JOHN DAY, CITY OF											
Reference No. (See Figure)	Potential Contaminant Source Type	Name	Approximate Location	City	Method for Listing	Proximity to Sensitive Areas	Relative Risk Level (1)	Potential Impacts	Comments				
1	Housing - High Density (> 1 House/0.5 acres) Housing - High Density (> 1 House/0.5 acres)	High-density housing area(s)	Throughout DWPA	John Day	Field-Observation	Within the 2-yr TOT	Moderate	Improper use, storage, and disposal of household chemicals may impact the drinking water supply. Stormwater run-off or infiltration may carry contaminants to drinking water supply. Improper use, storage, and disposal of household chemicals may impact the drinking water supply. Stormwater run-off or infiltration may carry contaminants to drinking water supply.					
2	Sewer Lines - Close Proximity to PWS Sewer Lines - Close Proximity to PWS	Sewer lines	Throughout DWPA	John Day	Interview	Within the 2-yr TOT	Higher	If not properly designed, installed, and maintained, sewer lines can impact drinking water, especially adjacent to a waterbody or within the 2-year time-of-travel zone for drinking water wells. If not properly designed, installed, and maintained, sewer lines can impact drinking water, especially adjacent to a waterbody or within the 2-year time-of-travel zone for drinking water wells.					
3	Injection/Dry Wells, Sumps - Class V UICs Injection/Dry Wells, Sumps - Class V UICs	Storm water injection wells	Throughout DWPA	John Day	Database (2)	Between 2-yr and 5-yr TOT	Higher	Shallow injection wells may transport untreated wastewater (process or storm water) directly into groundwater and impact drinking water. Shallow injection wells may transport untreated wastewater (process or storm water) directly into groundwater and impact drinking water.	PCS location based on regulatory database search - needs verification. Unknown location(s). PCS location based on regulatory database search - needs verification. Unknown location(s).				

Note: Sites and areas identified in this Table are only potential sources of contamination to the drinking water. Environmental contamination is not likely to occur when contaminants are used and managed properly.

(1) Where multiple potential contaminant sources exist at a site, the highest level of risk is used.

(2) See Table 3 for database listings (if necessary).

TABLE 2. INVENTORY RESULTS - LIST OF POTENTIAL CONTAMINANT SOURCES

PWS#	4100410	JOHN DAY, CITY OF										
Reference No. (See Figure)	Potential Contaminant Source Type	Name	Approximate Location	City	Method for Listing	Proximity to Sensitive Areas	Relative Risk Level (1)	Potential Impacts	Comments			
4	Boarding Stables Above Ground Storage Tanks - Excluding Water	Grant County Fairgrounds	NW Bridge Street	John Day	Database (2) Field-Observation	Within the 2-yr TOT	Moderate	Improper storage and management of animal wastes and wastewater in areas of concentrated livestock may impact drinking water. Spills, leaks, or improper handling of stored materials may impact the drinking water supply.				
5	Parks Parks	Park	7th Ave.	John Day	Field-Observation	Within the 2-yr TOT	Moderate	Over-application or improper handling of pesticides/fertilizers may impact drinking water. Excessive irrigation may cause transport of contaminants through runoff. Heavy use along edge of waterbody may contribute to erosion, causing turbidity.				
6	Crops - Irrigated (inc. orchards, vineyards, nurseries, greenhouses)	Irrigated crop area(s)	Along John Day River Valley	John Day	Field-Observation	Within the 2-yr TOT	Moderate	Over-application or improper handling of pesticides/fertilizers may impact drinking water. Excessive irrigation may cause transport of contaminants through runoff. Heavy use along edge of waterbody may contribute to erosion, causing turbidity.	Location and type of use based on WRD database - needs verification.			
7	Pesticide/Fertilizer/Petroleum Storage, Handling, Mixing, & Cleaning Areas	Pesticide/Fertilizer Handling/storage	East of Wells, 7th Ave.	John Day	Field-Observation	Within the 2-yr TOT	Higher	Leaks, spills and improper handling of pesticides, fertilizers and petroleum products may impact drinking water source.	Site is beyond public access, no visual observation - needs verification.			

Note: Sites and areas identified in this Table are only potential sources of contamination to the drinking water. Environmental contamination is not likely to occur when contaminants are used and managed properly.

(1) Where multiple potential contaminant sources exist at a site, the highest level of risk is used.

(2) See Table 3 for database listings (if necessary).

TABLE 2. INVENTORY RESULTS - LIST OF POTENTIAL CONTAMINANT SOURCES

PWS# 4100410 JOHN DAY, CITY OF

Reference No. (See Figure)	Potential Contaminant Source Type	Name	Approximate Location	City	Method for Listing	Proximity to Sensitive Areas	Relative Risk Level (1)	Potential Impacts	Comments
8	Campgrounds/RV Parks	RV Park	Fairgrounds	John Day	Field-Observation	Within the 2-yr TOT	Lower	Leaks or spills of automotive fluids or improperly managed septic systems and wastewater disposal may impact drinking water supply. Heavy usage along edge of waterbody may contribute to erosion, causing turbidity.	
9	Transportation - Freeways/State Highways/Other Heavy Use Roads	Main Street/Highway 26	Runs through DWPA	John Day	Field-Observation	Between 2-yr and 5-yr TOT	Moderate	Vehicle use increases the risk for leaks or spills of fuel & other haz. materials. Road building, maintenance & use can increase erosion/slope failure causing turbidity. Over-application or improper handling of pesticides/fertilizers may impact water.	
	Transportation - Freeways/State Highways/Other Heavy Use Roads						Moderate	Vehicle use increases the risk for leaks or spills of fuel & other haz. materials. Road building, maintenance & use can increase erosion/slope failure causing turbidity. Over-application or improper handling of pesticides/fertilizers may impact water.	
10	UST - Status Unknown	Gardner Enterprises	NE 2nd Ave.	John Day	Database (2) Field-Observation	Between 2-yr and 5-yr TOT	Higher	Spills, leaks, or improper handling of stored materials may impact the drinking water supply.	
11	Other - listed as handler of hazardous waste (HWIMSY)	Binary Technologies	Main Street	John Day	Database (2)	Between 2-yr and 5-yr TOT	Moderate	Spills, leaks, or improper handling of chemicals and other materials during transportation, use, storage, and disposal may impact the drinking water supply.	PCS location based on regulatory database search - needs verification.

Note: Sites and areas identified in this Table are only potential sources of contamination to the drinking water. Environmental contamination is not likely to occur when contaminants are used and managed properly.

(1) Where multiple potential contaminant sources exist at a site, the highest level of risk is used.

(2) See Table 3 for database listings (if necessary).

TABLE 2. INVENTORY RESULTS - LIST OF POTENTIAL CONTAMINANT SOURCES

PWS# 4100410 JOHN DAY, CITY OF

Reference No. (See Figure)	Potential Contaminant Source Type	Name	Approximate Location	City	Method for Listing	Proximity to Sensitive Areas	Relative Risk Level (1)	Potential Impacts	Comments
12	Dry Cleaners	John Day Drycleaner (former)	Main Street and Dayton Street	John Day	Database (2)	Between 2-yr and 5-yr TOT	Higher	Spills, leaks, or improper handling of dry cleaning solvents and other chemicals during transportation, use, storage and disposal may impact the drinking water supply.	PCS location based on regulatory database search - needs verification.
	Other - State cleanup site (ECSI)						Higher	The impacts of this potential contaminant source will be addressed during the enhanced inventory.	PCS location based on regulatory database search - needs verification.
13	Apartments and Condominiums	Apartments	Main Street	John Day	Field-Observation	Between 2-yr and 5-yr TOT	Lower	Improper use, storage, and disposal of household and facility maintenance chemicals may impact the drinking water supply. Stormwater run-off or infiltration may carry contaminants to water supply.	
14	Grazing Animals (> 5 large animals or equivalent/acre)	Grazing animal area(s)	7th Ave.	John Day	Field-Observation	Between 2-yr and 5-yr TOT	Moderate	Improper storage and management of animal wastes may impact drinking water supply. Concentrated livestock may contribute to erosion and sedimentation of surface water bodies.	
15	Fleet/Trucking/Bus Terminals	John Day Maintenance Shop and Sewage Treatment Plant	NW 7th Ave.	John Day	Database (2) Field-Observation	Between 2-yr and 5-yr TOT	Higher	Spills, leaks, or improper handling of fuels, grease, solvents, and other materials from vehicle service, fueling, and parking areas may impact the drinking water supply.	
	UST - Status Unknown						Higher	Spills, leaks, or improper handling of stored materials may impact the drinking water supply.	
	Wastewater Treatment Plants/Collection Stations						Moderate	Improper management of wastewater, treatment chemicals, or equipment maintenance materials may impact drinking water supply.	

Note: Sites and areas identified in this Table are only potential sources of contamination to the drinking water. Environmental contamination is not likely to occur when contaminants are used and managed properly.

(1) Where multiple potential contaminant sources exist at a site, the highest level of risk is used.

(2) See Table 3 for database listings (if necessary).

TABLE 2. INVENTORY RESULTS - LIST OF POTENTIAL CONTAMINANT SOURCES

PWS# 4100410 JOHN DAY, CITY OF

Reference No. (See Figure)	Potential Contaminant Source Type	Name	Approximate Location	City	Method for Listing	Proximity to Sensitive Areas	Relative Risk Level (1)	Potential Impacts	Comments
16	Fleet/Trucking/Bus Terminals	Oregon State Forestry	NW 9th Ave.	John Day	Database (2) Field-Observation	Between 2-yr and 5-yr TOT	Higher	Spills, leaks, or improper handling of fuels, grease, solvents, and other materials from vehicle service, fueling, and parking areas may impact the drinking water supply.	
	UST - Status Unknown						Higher	Spills, leaks, or improper handling of stored materials may impact the drinking water supply.	
17	Mines/Gravel Pits	Dredge Tailings	North of John Day River	John Day	Interview	Between 2-yr and 5-yr TOT	Higher	Spills, leaks, or improper handling of chemicals and wastes generated in mining operations or from heavy equipment may impact the drinking water supply.	Location based on topographic map. PWS reports old gold mine tailings are present. Site is no longer active.
18	RV/Mini Storage	R&S Self Store	Highway 26	John Day	Field-Observation	Between 5-yr and 15-yr TOT	Lower	Spills, leaks, or improper handling of automotive fluids and other materials during transportation, storage and disposal may impact the drinking water supply.	
19	Fleet/Trucking/Bus Terminals	Unknown operation	Highway 26	John Day	Field-Observation	Between 5-yr and 15-yr TOT	Higher	Spills, leaks, or improper handling of fuels, grease, solvents, and other materials from vehicle service, fueling, and parking areas may impact the drinking water supply.	
	Above Ground Storage Tanks - Excluding Water						Moderate	Spills, leaks, or improper handling of stored materials may impact the drinking water supply.	
20	Junk/Scrap/Salvage Yards	Salvage/scrap yard	Highway 26	John Day	Field-Observation	Between 5-yr and 15-yr TOT	Higher	Spills, leaks or improper handling of automotive chemicals, batteries, and other waste materials during storage and disposal may impact the drinking water supply.	Scrap, tires and equipment observed.

Note: Sites and areas identified in this Table are only potential sources of contamination to the drinking water. Environmental contamination is not likely to occur when contaminants are used and managed properly.

(1) Where multiple potential contaminant sources exist at a site, the highest level of risk is used.

(2) See Table 3 for database listings (if necessary).

TABLE 2. INVENTORY RESULTS - LIST OF POTENTIAL CONTAMINANT SOURCES

PWS# 4100410 JOHN DAY, CITY OF

Reference No. (See Figure)	Potential Contaminant Source Type	Name	Approximate Location	City	Method for Listing	Proximity to Sensitive Areas	Relative Risk Level (1)	Potential Impacts	Comments
21	Other - Unknown operation	Unknown operation	Highway 26	John Day	Field-Observation	Between 5-yr and 15-yr TOT	Moderate	The impacts of this potential contaminant source will be addressed during the enhanced inventory.	
22	Cemeteries - Pre-1945	Cemetery	Valley View Drive	John Day	Field-Observation	Between 5-yr and 15-yr TOT	Moderate	Embalming fluids (for example, arsenic) and decomposition by-products may impact drinking water supply.	
23	Fleet/Trucking/Bus Terminals	Fleet Terminal	Hillcrest Ave.	John Day	Field-Observation	Between 5-yr and 15-yr TOT	Higher	Spills, leaks, or improper handling of fuels, grease, solvents, and other materials from vehicle service, fueling, and parking areas may impact the drinking water supply.	
24	RV/Mini Storage	RV Storage	Main Street	John Day	Field-Observation	Between 5-yr and 15-yr TOT	Lower	Spills, leaks, or improper handling of automotive fluids and other materials during transportation, storage and disposal may impact the drinking water supply.	
25	Fleet/Trucking/Bus Terminals	Oregon State Highway 5-14	Hillcrest Drive	John Day	Database (2) Field-Observation	Between 5-yr and 15-yr TOT	Higher	Spills, leaks, or improper handling of fuels, grease, solvents, and other materials from vehicle service, fueling, and parking areas may impact the drinking water supply.	
	UST - Decommissioned/Inactive						Lower	Historic spills or leaks may impact the drinking water supply.	
26	Other - State cleanup site (ECSI)	John Day Fuel and Heating	Hillcrest Road and SE Gunther	John Day	Database (2) Field-Observation	Between 5-yr and 15-yr TOT	Higher	The impacts of this potential contaminant source will be addressed during the enhanced inventory.	Also listed as McDaniel Oil Distributors, Inc.
	Chemical/Petroleum Processing/Storage						Higher	Spills, leaks, or improper handling of chemicals and other materials during transportation, use, storage and disposal may impact the drinking water supply.	Also listed as McDaniel Oil Distributors, Inc.

Note: Sites and areas identified in this Table are only potential sources of contamination to the drinking water. Environmental contamination is not likely to occur when contaminants are used and managed properly.

(1) Where multiple potential contaminant sources exist at a site, the highest level of risk is used.

(2) See Table 3 for database listings (if necessary).

TABLE 2. INVENTORY RESULTS - LIST OF POTENTIAL CONTAMINANT SOURCES

PWS# 4100410 JOHN DAY, CITY OF

Reference No. (See Figure)	Potential Contaminant Source Type	Name	Approximate Location	City	Method for Listing	Proximity to Sensitive Areas	Relative Risk Level (1)	Potential Impacts	Comments
27	Parking Lots/Malls (> 50 Spaces)	Grant County Ford	E. Main Street	John Day	Database (2) Field-Observation	Between 5-yr and 15-yr TOT	Higher	Spills and leaks of automotive fluids in parking lots may impact the drinking water supply.	Also listed as John Day Motor Co.
	UST - Status Unknown						Higher	Spills, leaks, or improper handling of stored materials may impact the drinking water supply.	Also listed as John Day Motor Co.
28	Automobiles - Body Shops	Body Shop	Dayton Ave.	John Day	Field-Observation	Between 5-yr and 15-yr TOT	Higher	Improper management of vehicle paints, thinners, and primer products may impact the drinking water supply.	
29	UST - Decommissioned/Inactive Automobiles - Gas Stations	Main Stop Mini-Market and Texaco	E. Main Street	John Day	Database (2) Field-Observation	Between 5-yr and 15-yr TOT	Lower	Historic spills or leaks may impact the drinking water supply.	
							Higher	Spills, leaks, or improper handling of fuels and other materials during transportation, transfer, and storage may impact the drinking water supply.	
30	UST - Decommissioned/Inactive Automobiles - Gas Stations	Shell Station	S. Canyon Blvd.	John Day	Database (2) Field-Observation	Between 5-yr and 15-yr TOT	Lower	Historic spills or leaks may impact the drinking water supply.	
							Higher	Spills, leaks, or improper handling of fuels and other materials during transportation, transfer, and storage may impact the drinking water supply.	

Note: Sites and areas identified in this Table are only potential sources of contamination to the drinking water. Environmental contamination is not likely to occur when contaminants are used and managed properly.
 (1) Where multiple potential contaminant sources exist at a site, the highest level of risk is used.
 (2) See Table 3 for database listings (if necessary).

TABLE 2. INVENTORY RESULTS - LIST OF POTENTIAL CONTAMINANT SOURCES

PWS#	4100410	JOHN DAY, CITY OF							
Reference No. (See Figure)	Potential Contaminant Source Type	Name	Approximate Location	City	Method for Listing	Proximity to Sensitive Areas	Relative Risk Level (1)	Potential Impacts	Comments
31	UST - Status Unknown	Chevron USA	S. Canyon Blvd.	John Day	Database (2)	Between 5-yr and 15-yr TOT	Higher	Spills, leaks, or improper handling of stored materials may impact the drinking water supply.	PCS location based on regulatory database search - needs verification.
	Historic Gas Stations						Higher	Historic spills, leaks, or improper handling of solvents and petroleum products may impact the drinking water supply. Abandoned underground storage tanks may be present.	PCS location based on regulatory database search - needs verification.
32	Above Ground Storage Tanks - Excluding Water	Body Fitness and Dance Inc.	W. Main Street	John Day	Database (2) Field-Observation	Between 5-yr and 15-yr TOT	Moderate	Spills, leaks, or improper handling of stored materials may impact the drinking water supply.	
33	Automobiles - Body Shops	Doug's Motor Vehicle Repair and 1st Choice Auto Body	S. Canyon Blvd.	John Day	Database (2) Field-Observation	Between 5-yr and 15-yr TOT	Higher	Improper management of vehicle paints, thinners, and primer products may impact the drinking water supply.	Also listed as SM Motor Co. Inc.
	Automobiles - Repair Shops						Higher	Spills, leaks, or improper handling of automotive fluids, solvents, and repair materials during transportation, use, storage and disposal may impact the drinking water supply.	Also listed as SM Motor Co. Inc.
	Above Ground Storage Tanks - Excluding Water						Moderate	Spills, leaks, or improper handling of stored materials may impact the drinking water supply.	Also listed as SM Motor Co. Inc.
34	Above Ground Storage Tanks - Excluding Water	City of John Day	S. Canyon Blvd.	John Day	Database (2) Field-Observation	Between 5-yr and 15-yr TOT	Moderate	Spills, leaks, or improper handling of stored materials may impact the drinking water supply.	

Note: Sites and areas identified in this Table are only potential sources of contamination to the drinking water. Environmental contamination is not likely to occur when contaminants are used and managed properly.

(1) Where multiple potential contaminant sources exist at a site, the highest level of risk is used.

(2) See Table 3 for database listings (if necessary).

TABLE 2. INVENTORY RESULTS - LIST OF POTENTIAL CONTAMINANT SOURCES

PWS# 4100410 JOHN DAY, CITY OF

Reference No. (See Figure)	Potential Contaminant Source Type	Name	Approximate Location	City	Method for Listing	Proximity to Sensitive Areas	Relative Risk Level (1)	Potential Impacts	Comments
35	UST - Status Unknown Fire Station	City of John Day - Fire Station	SE Dayton	John Day	Database (2) Field-Observation	Between 5-yr and 15-yr TOT	Higher Lower	Spills, leaks, or improper handling of stored materials may impact the drinking water supply. Spills, leaks, or improper handling of chemicals and other materials during transportation, use, storage and disposal may impact the drinking water supply.	
36	Utility Stations - Maintenance Transformer Storage	Substation	S. Canyon Blvd.	John Day	Field-Observation	Between 5-yr and 15-yr TOT	Higher	Spills, leaks, or improper handling of chemicals and other materials including PCBs during transportation, use, storage and disposal may impact the drinking water supply.	
37	Schools	Grant School District	NW Bridge Street	John Day	Field-Observation	Between 2-yr and 5-yr TOT	Lower	Over-application or improper handling of cleaning products, pesticides or fertilizers used on the school grounds may impact drinking water. Vehicle maintenance wastes may contribute contaminants.	
38	UST - Status Unknown Fleet/Trucking/Bus Terminals	US West/Century Telephone	N. Canyon Blvd.	John Day	Database (2) Field-Observation	Between 2-yr and 5-yr TOT	Higher Higher	Spills, leaks, or improper handling of stored materials may impact the drinking water supply. Spills, leaks, or improper handling of fuels, grease, solvents, and other materials from vehicle service, fueling, and parking areas may impact the drinking water supply.	

Note: Sites and areas identified in this Table are only potential sources of contamination to the drinking water. Environmental contamination is not likely to occur when contaminants are used and managed properly.
 (1) Where multiple potential contaminant sources exist at a site, the highest level of risk is used.
 (2) See Table 3 for database listings (if necessary).

TABLE 2. INVENTORY RESULTS - LIST OF POTENTIAL CONTAMINANT SOURCES

PWS# 4100410 JOHN DAY, CITY OF

Reference No. (See Figure)	Potential Contaminant Source Type	Name	Approximate Location	City	Method for Listing	Proximity to Sensitive Areas	Relative Risk Level (1)	Potential Impacts	Comments
39	Historic Gas Stations	Eric's Chevron Service	W. Main Street	John Day	Database (2)	Between 2-yr and 5-yr TOT	Higher	Historic spills, leaks, or improper handling of solvents and petroleum products may impact the drinking water supply. Abandoned underground storage tanks may be present.	PCS location based on regulatory database search - needs verification.
	UST - Decommissioned/Inactive						Lower	Historic spills or leaks may impact the drinking water supply.	PCS location based on regulatory database search - needs verification.
40	Automobiles - Repair Shops	Les Schwab Tire Center	W. Main Street	John Day	Database (2) Field-Observation	Between 2-yr and 5-yr TOT	Higher	Spills, leaks, or improper handling of automotive fluids, solvents, and repair materials during transportation, use, storage and disposal may impact the drinking water supply.	
41	Other - State cleanup site (ECSI)	Rainbow Dry Cleaners (former)	W. Main Street	John Day	Database (2)	Between 2-yr and 5-yr TOT	Higher	The impacts of this potential contaminant source will be addressed during the enhanced inventory.	PCS location based on regulatory database search - needs verification.
42	Above Ground Storage Tanks - Excluding Water	John Day Rigging Service	W. Main Street	John Day	Database (2) Field-Observation	Between 2-yr and 5-yr TOT	Moderate	Spills, leaks, or improper handling of stored materials may impact the drinking water supply.	
43	Automobiles - Body Shops	2nd Generation Technologies	W. Main Street	John Day	Database (2)	Between 5-yr and 15-yr TOT	Higher	Improper management of vehicle paints, thinners, and primer products may impact the drinking water supply.	PCS location based on regulatory database search - needs verification.
44	Above Ground Storage Tanks - Excluding Water	Eastern Oregon Building Maintenance	W. Main Street	John Day	Database (2)	Between 5-yr and 15-yr TOT	Moderate	Spills, leaks, or improper handling of stored materials may impact the drinking water supply.	PCS location based on regulatory database search - needs verification.

Note: Sites and areas identified in this Table are only potential sources of contamination to the drinking water. Environmental contamination is not likely to occur when contaminants are used and managed properly.

(1) Where multiple potential contaminant sources exist at a site, the highest level of risk is used.

(2) See Table 3 for database listings (if necessary).

TABLE 2. INVENTORY RESULTS - LIST OF POTENTIAL CONTAMINANT SOURCES

PWS#	4100410	JOHN DAY, CITY OF											
Reference No. (See Figure)	Potential Contaminant Source Type	Name	Approximate Location	City	Method for Listing	Proximity to Sensitive Areas	Relative Risk Level (1)	Potential Impacts	Comments				
45	Machine Shops	John Day Auto Parts	W. Main Street	John Day	Database (2) Field-Observation	Between 5-yr and 15-yr TOT	Higher	Spills, leaks, or improper handling of solvents, metals, and other chemicals or materials during transportation, use, storage and disposal may impact the drinking water supply.					
	UST - Status Unknown						Higher	Spills, leaks, or improper handling of stored materials may impact the drinking water supply.					
46	RV/Mini Storage	RV/Mini-Storage	W. Main Street	John Day	Field-Observation	Between 5-yr and 15-yr TOT	Lower	Spills, leaks, or improper handling of automotive fluids and other materials during transportation, storage and disposal may impact the drinking water supply.					
47	Dry Cleaners	Press Cleaners	W. Main Street	John Day	Field-Observation	Between 5-yr and 15-yr TOT	Higher	Spills, leaks, or improper handling of dry cleaning solvents and other chemicals during transportation, use, storage and disposal may impact the drinking water supply.					
48	Parking Lots/Malls (> 50 Spaces)	Parking lot	W. Main Street	John Day	Field-Observation	Between 5-yr and 15-yr TOT	Higher	Spills and leaks of automotive fluids in parking lots may impact the drinking water supply.					
49	UST - Upgraded/Registered - Active	Leathers Oil Co.	W. Main Street	John Day	Database (2) Field-Observation	Between 5-yr and 15-yr TOT	Lower	Spills or improper handling during tank filling or product distribution may impact the drinking water supply.					
	Automobiles - Gas Stations						Higher	Spills, leaks, or improper handling of fuels and other materials during transportation, transfer, and storage may impact the drinking water supply.					
	UST - Decommissioned/Inactive						Lower	Historic spills or leaks may impact the drinking water supply.					

Note: Sites and areas identified in this Table are only potential sources of contamination to the drinking water. Environmental contamination is not likely to occur when contaminants are used and managed properly.
 (1) Where multiple potential contaminant sources exist at a site, the highest level of risk is used.
 (2) See Table 3 for database listings (if necessary).

TABLE 2. INVENTORY RESULTS - LIST OF POTENTIAL CONTAMINANT SOURCES

PWS# 4100410 JOHN DAY, CITY OF

Reference No. (See Figure)	Potential Contaminant Source Type	Name	Approximate Location	City	Method for Listing	Proximity to Sensitive Areas	Relative Risk Level (1)	Potential Impacts	Comments
50	Automobiles - Body Shops	USDA Forest Service Compound	Government Road	John Day	Database (2) Field-Observation	Between 5-yr and 15-yr TOT	Higher	Improper management of vehicle paints, thinners, and primer products may impact the drinking water supply.	
	UST - Decommissioned/Inactive						Lower	Historic spills or leaks may impact the drinking water supply.	
51	Photo Processing/Printing	Hutch's Printing	Main Street	John Day	Field-Observation	Between 5-yr and 15-yr TOT	Higher	Spills, leaks, or improper handling of photographic chemicals during transportation, use, storage and disposal may impact the drinking water supply.	
52	Above Ground Storage Tanks - Excluding Water	Byron's Excavating	Ford Road	John Day	Database (2)	Between 5-yr and 15-yr TOT	Moderate	Spills, leaks, or improper handling of stored materials may impact the drinking water supply.	PCS location based on regulatory database search - needs verification.
53	Medical/Vet Offices	Blue Mountain Hospital	Ford Road	John Day	Database (2) Field-Observation	Between 5-yr and 15-yr TOT	Moderate	Spills, leaks, or improper handling of x-ray, biological, chemical, and radioactive wastes and other materials during transportation, use, storage and disposal may impact the drinking water supply.	
	Above Ground Storage Tanks - Excluding Water						Moderate	Spills, leaks, or improper handling of stored materials may impact the drinking water supply.	
54	Historic Gas Stations	Unocal 4093	W. Main Street	John Day	Database (2) Field-Observation	Between 5-yr and 15-yr TOT	Higher	Historic spills, leaks, or improper handling of solvents and petroleum products may impact the drinking water supply. Abandoned underground storage tanks may be present.	
	UST - Status Unknown						Higher	Spills, leaks, or improper handling of stored materials may impact the drinking water supply.	

Note: Sites and areas identified in this Table are only potential sources of contamination to the drinking water. Environmental contamination is not likely to occur when contaminants are used and managed properly.

(1) Where multiple potential contaminant sources exist at a site, the highest level of risk is used.

(2) See Table 3 for database listings (if necessary).

TABLE 2. INVENTORY RESULTS - LIST OF POTENTIAL CONTAMINANT SOURCES

PWS# 4100410 JOHN DAY, CITY OF		Reference No. (See Figure)	Potential Contaminant Source Type	Name	Approximate Location	City	Method for Listing	Proximity to Sensitive Areas	Relative Risk Level (1)	Potential Impacts	Comments
55	Homesteads - Rural - Septic Systems (< 1/acre)	Rural homes using septic systems	Throughout DWPA for Long Gulch Spring	John Day	Field-Observation	Zone 1	Lower	If not properly sited, designed, installed, and maintained, septic systems can impact drinking water. Use of drain cleaners and dumping household hazardous wastes can result in groundwater contamination.			
56	Other - Unknown operation	Unknown operation	Southeast of Long Gulch Spring	Canyon City	Field-Observation	Zone 1	Moderate	The impacts of this potential contaminant source will be addressed during the enhanced inventory.			

Note: Sites and areas identified in this Table are only potential sources of contamination to the drinking water. Environmental contamination is not likely to occur when contaminants are used and managed properly.
 (1) Where multiple potential contaminant sources exist at a site, the highest level of risk is used.
 (2) See Table 3 for database listings (if necessary).

TABLE 3. RESULTS OF REGULATORY DATABASE SEARCH

PWS# 4100410 JOHN DAY, CITY OF

Reference No. (1)	Name	Database Listings (2)
3	Storm water injection wells	UIC list with 1 Active UIC's Classified as Storm Water Drainage UIC list with 4 Under Rev UIC's Classified as Storm Water Drainage
	Storm water injection wells	UIC list with 1 Abandoned UIC's Classified as Storm Water Drainage UIC list with 1 Active UIC's Classified as Storm Water Drainage UIC list with 4 Under Rev UIC's Classified as Storm Water Drainage
	Storm water injection wells	UIC list with 1 Abandoned UIC's Classified as Storm Water Drainage
4	Grant County Fairgrounds	SFM - Diesel Fuel stored in Aboveground Tank SFM - Stove Oil stored in Aboveground Tank
10	Gardner Enterprises	UST list-PWS needs to verify tank permit status
15	John Day Maintenance Shop and Sewage Treatment Plant	UST list-PWS needs to verify tank permit status
		SIS list with a individual WPCF permit.
		SFM - Ursa Super Plus Sae 30 stored in Aboveground Tank
		SFM - Unocal Diesel #2 stored in Underground Tank
		SFM - Calcium Hypochlorite stored in Fiber Drum SFM - Paint stored in Can
16	Oregon State Forestry	SFM - Motor Oil stored in Steel Drum
		UST list-PWS needs to verify tank permit status
		SFM - Gasoline stored in Steel Drum
		SFM - Cleaning Solvent stored in Steel Drum

Notes: (1) See Table 2 and Figure. (2) For State Fire Marshals (SFM) list, information on materials in a gaseous-form is not presented since gaseous compounds rarely pose a threat to groundwater or surface water.

TABLE 3. RESULTS OF REGULATORY DATABASE SEARCH

PWS# 4100410 JOHN DAY, CITY OF

Reference No. (1)	Name	Database Listings (2)
16	Oregon State Forestry	SFM - Antifreeze stored in Plastic Bottle, Jug, Bucket SFM - Paint Enamel Alkyd stored in Can
25	Oregon State Highway 5-14	LUST list with unknown status UST list-PWS needs to verify tank permit status
26	John Day Fuel and Heating	SFM - Motor Oil stored in Aboveground Tank ECSI site with suspected contamination. SFM - Diesel stored in Aboveground Tank SFM - Gasoline stored in Aboveground Tank
27	Grant County Ford	UST list-PWS needs to verify tank permit status SFM - Used Motor Oil stored in Tank Inside Building SFM - Auto Body Paint stored in Can SFM - Motor Oil stored in Tank Inside Building
29	Main Stop Mini-Market and Texaco	LUST list with unknown status UST list-PWS needs to verify tank permit status
30	Shell Station	LUST list with unknown status UST list-PWS needs to verify tank permit status
31	Chevron USA	UST list-PWS needs to verify tank permit status
32	Body Fitness and Dance Inc.	SFM - Kerosene K-1 stored in Aboveground Tank
33	Doug's Motor Vehicle Repair and 1st Choice Auto Body	SFM - Solvent stored in Aboveground Tank UST list-PWS needs to verify tank permit status

Notes: (1) See Table 2 and Figure. (2) For State Fire Marshals (SFM) list, information on materials in a gaseous-form is not presented since gaseous compounds rarely pose a threat to groundwater or surface water.

TABLE 3. RESULTS OF REGULATORY DATABASE SEARCH

PWS# 4100410 JOHN DAY, CITY OF

Reference No. (1)	Name	Database Listings (2)
33	Doug's Motor Vehicle Repair and 1st Choice Auto Body	SFM - Heating Oil stored in Aboveground Tank
34	City of John Day	SFM - Unocal Diesel #2 stored in Aboveground Tank
35	City of John Day - Fire Station	SFM - Diesel #2 stored in Underground Tank UST list-PWS needs to verify tank permit status
38	US West/Century Telephone	SFM - Fuel Oil #1 stored in Aboveground Tank SFM - Lead Acid Batteries-wet stored in Plastic Bottle, Jug, Bucket UST list-PWS needs to verify tank permit status
39	Eric's Chevron Service	LUST list with unknown status UST list-PWS needs to verify tank permit status
40	Les Schwab Tire Center	SFM - Calcium Chloride stored in Bag
42	John Day Rigging Service	SFM - Heating Oil stored in Aboveground Tank
43	2nd Generation Technologies	SFM - Norgas 9 stored in Cylinder
44	Eastern Oregon Building Maintenance	SFM - Kerosene stored in Steel Drum
45	John Day Auto Parts	SFM - Lead Acid Batteries-wet stored in Box SFM - Starter Fluid stored in Can SFM - Solvent Paint stored in Steel Drum SFM - Solvent Cleaning stored in Steel Drum SFM - Waste Lead Acid Batteries stored in Totebin SFM - Paint Thinner stored in Steel Drum

Notes: (1) See Table 2 and Figure. (2) For State Fire Marshals (SFM) list, information on materials in a gaseous-form is not presented since gaseous compounds rarely pose a threat to groundwater or surface water.

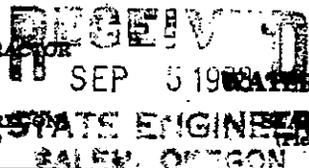
TABLE 3. RESULTS OF REGULATORY DATABASE SEARCH

PWS# 4100410 JOHN DAY, CITY OF

Reference No. (1)	Name	Database Listings (2)
45	John Day Auto Parts	SFM - Heating Oil stored in Underground Tank SFM - Carb Cleaner stored in Steel Drum SFM - Antifreeze stored in Steel Drum SFM - Paint Automotive stored in Can SFM - Motor Oil stored in Steel Drum
49	Leathers Oil Co.	SFM - Gasoline stored in Underground Tank UST list with a status of 3 UST(s) upgraded and 0 not upgraded to DEQ 1998 technical standards. SFM - Diesel stored in Underground Tank LUST list with unknown status
50	USDA Forest Service Compound	UST list-PWS needs to verify tank permit status LUST list with unknown status
52	Byron's Excavating	SFM - Hydraulic Tractor Fluid stored in Steel Drum SFM - Lacquer Thinner stored in Steel Drum SFM - Motor Oil Delo 400 stored in Steel Drum
53	Blue Mountain Hospital	SFM - Diesel Fuel stored in Aboveground Tank SFM - Ps 300 Heating Oil stored in Underground Tank
54	Unocal 4093	UST list-PWS needs to verify tank permit status

Notes: (1) See Table 2 and Figure. (2) For State Fire Marshals (SFM) list, information on materials in a gaseous-form is not presented since gaseous compounds rarely pose a threat to groundwater or surface water.

#3 GRAN. 434...



NOTICE TO WATER WELL CONTRACTOR
 The original and first copy of this report are to be filed with the
STATE ENGINEER, SALEM 10, OREGON
 within 30 days from the date of well completion.

WATER WELL REPORT
 STATE ENGINEER OF OREGON
 (Please type or print)

State Well No. 13/31-23k
 State Permit No. _____

(1) OWNER:
 Name City of John Day Ore.
 Address John Day Ore.

(2) LOCATION OF WELL:
 County GRANT Driller's well number 1
 1/4 Section 33+34 T. 13S R. 31E W.M.
 Bearing and distance from section or subdivision corner
South 74° 59' West a distance of
175.56 feet from NE QUARTER
CORNER Common to Secs 33+34

(3) TYPE OF WORK (check):
 New Well Deepening Reconditioning Abandon
 Abandonment, describe material and procedure in Item 12.

(4) PROPOSED USE (check): Domestic Industrial Municipal Irrigation Test Well Other
(5) TYPE OF WELL: Rotary Cable Dug Driven Jetted Bored

(6) CASING INSTALLED: Threaded Welded
12" Diam. from -1 ft. to 59 ft. Gage 280'
 " Diam. from _____ ft. to _____ ft. Gage _____
 " Diam. from _____ ft. to _____ ft. Gage _____

(7) PERFORATIONS: Perforated? Yes No
 Type of perforator used _____
 Size of perforations in. by in.
 _____ perforations from _____ ft. to _____ ft.
 _____ perforations from _____ ft. to _____ ft.
 _____ perforations from _____ ft. to _____ ft.
 _____ perforations from _____ ft. to _____ ft.

(8) SCREENS: Well screen installed? Yes No
 Manufacturer's Name _____ Model No. _____
 _____ Slot size _____ Set from _____ ft. to _____ ft.
 _____ Slot size _____ Set from _____ ft. to _____ ft.

(9) CONSTRUCTION:
 Well seal—Material used in seal Concrete
 Depth of seal 30' ft. Was a packer used? SAND
 Diameter of well bore to bottom of seal 30" in.
 Were any loose strata cemented off? Yes No
 Was a drive shoe used? Yes No
 Was well gravel packed? Yes No Size of gravel: _____
 Gravel placed from _____ ft. to _____ ft.
 Did any strata contain unusable water? Yes No
 Type of water? _____ Depth of strata _____
 Method of sealing strata off _____

(10) WATER LEVELS:
 Static level _____ ft. below land surface Date _____
 Artesian pressure 20" lbs. per square inch Date 8-17-63

(11) WELL TESTS: Drawdown is amount water level is lowered below static level
 Was a pump test made? Yes No If yes, by whom? DRILLER
 Yield: 876 gal./min. with 100 ft. drawdown after 14 hrs.
 " 663 G.P.M. " 20' " " 6 "
 Bailor test gal./min. with _____ ft. drawdown after _____ hrs.
 Artesian flow 500 g.p.m. Date 8-17-63
 Temperature of water 58° Was a chemical analysis made? Yes No

(12) WELL LOG: Diameter of well below casing 11 3/4
 Depth drilled 250 ft. Depth of completed well 350 ft.
 Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.

MATERIAL	FROM	TO
Soil	0	1
CLAY & Boulders	1	18
CLAY & GRAVEL	18	39
GRAVEL MEDIUM	39	42
CLAY BLUE	42	50
ROCK GREY	50	81
ROCK GREY HARD	81	93
ROCK BASALT BLACK	93	109
ROCK GREY	109	111
ROCK BLACK BASALT	111	176
CLAY BLACK STICKY	176	220
CLAY & GRAVEL	220	232
GRAVEL SMALL	232	238
CLAY GREY STICKY	238	250
SAND SMALL GRAVEL	250	253
ARTESIAN WATER		

Work started 6-27 1963 Completed 8-17 1963
 Date well drilling machine moved off of well 8-21 1963

(13) PUMP:
 Manufacturer's Name None
 Type: _____ H.P. _____

Water Well Contractor's Certification:
 This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.
 NAME HOLLOWAY DRILLING CO.
 (Person, firm, or corporation) (Type or print)
 Address ONTARIO ORE.
 Drilling Machine Operator's License No. 102
 [Signed] May Holloway
 (Water Well Contractor)
 Contractor's License No. 16 Date 9-3 1963

WATER WELL REPORT
STATE OF OREGON

RECORDED #4
MAR 27 1981
WATER RESOURCES DEPT
SALEM, OREGON

State Well No. 135/31E-236d
State Permit No. APPL. 6-10244

GRAN... 42.7.

(1) OWNER:

Name Canyon City
Address 123 S Washington
City Canyon City State Oregon

(2) TYPE OF WORK (check):

New Well Deepening Reconditioning Abandon
If abandonment, describe material and procedure in Item 12.

(3) TYPE OF WELL:

Rotary Air Driven
Rotary Mud Dug
 Bored

(4) PROPOSED USE (check):

Domestic Industrial Municipal
Irrigation Test Well Other
Thermal Withdrawal ReInjection

CASING INSTALLED:

Steel Plastic
Threaded Welded
1.8" Diam. from 0 ft. to 9.3 ft. Gauge 1.250
1.6" Diam. from 0 ft. to 1.04 ft. Gauge 1.312

LINER INSTALLED:

1.2" Diam. from 7.3 ft. to 18.4 ft. Gauge 1.312

(6) PERFORATIONS:

Perforated? Yes No
Type of perforator used factory perforated
Size of perforations in by in
736 perforations from 10.4 ft. to 1.82 ft.
perforations from ft. to ft.
perforations from ft. to ft.

(7) SCREENS:

Well screen installed? Yes No
Manufacturer's Name Model No.
Type Diam. Slot Size Set from ft. to ft.
Diam. Slot Size Set from ft. to ft.

(8) WELL TESTS:

Drawdown is amount water level is lowered below static level
Was a pump test made? Yes No If yes, by whom? FARMORE
d. 1000 gal./min. with 160 ft. drawdown after 2 hrs.
Air test gal./min. with drill stem at ft. hrs.
Boiler test gal./min. with ft. drawdown after hrs.
Artesian flow g.p.m.
Temperature of water 58° Depth artesian flow encountered ft.

(9) CONSTRUCTION:

Special standards: Yes No
Well seal—Material used Portland Cement
Well sealed from land surface to 10.4 ft.
Diameter of well bore to bottom of seal 1.6 in.
Diameter of well bore below seal 1.5 1/2 in.
Number of sacks of cement used in well seal 57 sacks
How was cement grout placed? pumped
Was pump installed? No Type HP Depth ft.
Was a drive shoe used? Yes No Plugs Size: location ft.
Did any strata contain unusable water? Yes No
Type of Water? depth of strata
Method of sealing strata off
Was wall gravel packed? Yes No Size of gravel:
Gravel placed from ft. to ft.

(10) LOCATION OF WELL:

County Grant Driller's well number
SE 1/4 NW 1/4 Section 23 T. 13S R. 31E W.M.
Tax Lot # Lot Blk Subdivision
Address at well location:

(11) WATER LEVEL: Completed well.

Depth at which water was first found 168 ft.
Static level 17 ft. below land surface. Date 12-2-81
Artesian pressure lbs. per square inch. Date

(12) WELL LOG:

Diameter of well below casing
Depth drilled 185 ft. Depth of completed well 185 ft.
Formation: Describe color, texture, grain size and structure of materials; and show thickness and nature of each stratum and aquifer penetrated, with at least one entry for each change of formation. Report each change in position of Static Water Level and indicate principal water-bearing strata.

MATERIAL	From	To	SWL
gravel	0	20	
clay + gravel	20	32	
soft black basalt	32	50	
black clay + black basalt	50	85	
black clay + black sand	85	90	
black clay + black basalt	90	92	
black basalt + gray shale	92	165	
black basalt	165	168	
red porous basalt	168	175	H ₂ O
black porous basalt	175	185	H ₂ O

Work started 11-24 19 80 Completed 1-7 19 81
Date well drilling machine moved off of well 1-8 19 81

Drilling Machine Operator's Certification:

This well was constructed under my direct supervision. Materials used and information reported above are true to my best knowledge and belief.
[Signed] [Signature] Date 1-8, 1981
(Drilling Machine Operator)

Drilling Machine Operator's License No. 1345

Water Well Contractor's Certification:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.
Name L.A.O. Hoerl Well Drilling (Type or print)
(Firm, firm or corporation)
Address Rt. 1 Box 14 Pilot Rock Or.
[Signed] [Signature] (Water Well Contractor)

Contractor's License No. 739 Date 1-8, 1981

NOTICE TO WATER WELL CONTRACTOR
The original and first copy of this report are to be filed with the

WATER RESOURCES DEPARTMENT,
SALEM, OREGON 97310
within 30 days from the date of well completion.

RP-12658-890

Parameters Used in Delineation Model for Spring

Delineation Method: Numerical Hydrogeologic Mapping Analytic Element
 Other:

Flow Rate (Q in gpm): ~87 gpm

Source: System Water Resources Dept Other:

Nature of the Aquifer: Unknown Unconfined
 Semi-confined Confined

Aquifer name: **Rattlesnake Formation**

Confining Unit lithology: NA
Depth to Confining Unit: NA
Confining Unit thickness: NA
Depth to Aquifer: Unknown

Aquifer Characteristics:

Lithology:

Unknown Sandy Silt Layered Volcanic Rocks
 Sand Sand & Gravel Fractured Volcanic Rocks
 Gravel Cobbles/Gravel Fractured Sedimentary Rocks
 Other: Fanglomerate

Geologic Factors Controlling Spring:

Impermeable Contact Fractures Other: Mine shafts
create conduit flow
 Volcanic Interflow Zone Perched Spring Unknown

Hydraulic Conductivity (Permeability): _____ ft/day N/A

Estimated from lithology Specific Capacity
 Published Report Aquifer Test

Hydraulic Gradient: _____ Flow Direction: _____ N/A
 Published Report Graphical Solution Estimate
 Field Measurements Model Results

High Capacity Wells Accounted for: None

Parameters Used in Delineation Model for Wells

Delineation Method: Analytical Calculated Fixed Radius Enhanced CFR
 Numerical Hydrogeologic Mapping Analytic Element

Pump Rate (Q in gpm): Well #3 shallow zone: ~88 gpm, Well #3 deep zone: ~237 gpm,
Well #4 deep zone only: ~31 gpm

Source: System Water Resources Dept Comparable Community
 Pump Capacity Population Estimate 90% of Safe Yield

Nature of the Aquifer: Unknown Unconfined
 Semi-confined Confined

Aquifer name: **Picture Gorge Basalt (Columbia River Basalt Group)**
Well #3 shallow zone: John Day River Alluvium

Confining Unit lithology: Well #3: clay*, Well #4: basalt, silt, shale
Depth to Confining Unit: Well #3: 176 ft.*, Well #4: 90 ft.
Confining Unit thickness: Well #3: 74 ft.*, Well #4: 78 ft.
Depth to Aquifer: Well #3: 250 ft., Well #4: 168 ft.

*Confining unit may be combination of basalt, silt, and clay, extending from 42 to 250 ft.

Aquifer Characteristics:

Lithology:

Unknown Sandy Silt Layered Volcanic Rocks
 Sand Sand & Gravel Fractured Volcanic Rocks
 Gravel Cobbles/Gravel Fractured Sedimentary Rocks
 Other: _____

Thickness (b): Well #3 shallow zone: 3 ft., Wells #3 and #4 deep zone: 12.5 ft.

Effective Porosity (n): Well #3 shallow zone: 0.23, Wells #3 and #4 deep zone: 0.25

Hydraulic Conductivity (Permeability): _____ ft/day N/A
 Estimated from lithology Specific Capacity (Well Report)
 Published Report Aquifer Test

Hydraulic Gradient: _____ Flow Direction: All wells: _____ N/A
 Published Report Graphical Solution Estimate
 Field Measurements Model Results

Other High Capacity Wells Accounted for: None

[Introduction](#) :: [Data Search Options](#) :: [WS Name Look Up](#) :: [WS ID Look Up](#) :: [DWP Home](#) :: [Quick Data Links](#)

OR41 00165 CANYON CITY WATER DEPARTMENT

Classification: COMMUNITY

Contact: TAMMY BREMNER
PO BOX 276
CANYON CITY, OR 97820

Phone: 541-575-0509

County: GRANT

Activity Status: ACTIVE -- [History](#)

Population: 676

Number of Connections: 315

Operating Period: January 1 to December 31

Regulating Agency: [GRANT COUNTY](#)

Certified Operator(s)

Owner Type: LOCAL GOVERNMENT

Required: Y

Licensed By: N/A

Distribution class: 1

Approved Drinking Water Protection Plan: No

Treatment class: None

Source Water Assessment: Yes

Filtration Endorsement Required: No

Last Survey Date: Nov 10, 2009 - [Outstanding Performer!](#)

Sources

<u>Facility ID</u>	<u>Facility Name</u>	<u>Well Logs</u>	<u>Activity Status</u>	<u>Availability</u>	<u>Source Type</u>
EP-A	EP FOR BYRAM GULCH/TRIBUTARY SPRING		A		GW
SRC-AA	BYRAM GULCH SPRING I.G.		A	Permanent	GW
SRC-AB	TRIBUTARY SPRING		A	Permanent	GW
EP-B	EP FOR WELL (GRAN 593)		A		GW
SRC-BA	LONG GULCH WELL (GRAN 593)		A	Permanent	GW
EP-C	EP FOR CITY OF JOHN DAY		I		GW
SRC-CA	CITY OF JOHN DAY		I	Emergency	GW P

Treatment

<u>State ID</u>	<u>Facility Name</u>	<u>Treatment Process</u>	<u>Treatment Objective</u>	<u>Filter Type</u>
WTP-A	TP FOR BYRAM GULCH/TRIBUTARY SPRING	GASEOUS CHLORINATION, POST	DISINFECTION	
WTP-B	TP FOR WELL	GASEOUS CHLORINATION, POST	DISINFECTION	

Consumer Confidence Reports

<u>For Year</u>	<u>Date Received</u>	<u>Date Certified</u>
2010	Jul 11, 2011	Jul 11, 2011
2009	Aug 09, 2010	Aug 09, 2010
2008	Jul 09, 2009	Jul 09, 2009
2007	Sep 29, 2008	Sep 29, 2008

Cross Connection Annual Summary Reports

<u>Ordinance Received</u>	<u>Ordinance Status</u>	<u>ASR Received</u>
No		2009
		2008
		2002

For further information on this public water system, click on the area of interest below:

[System Info](#) :: [Report for Lenders](#) :: [Alerts](#) :: [Violations](#) :: [Enforcements](#) :: [Contacts](#) :: [Site Visits](#) :: [Public Notice](#) :: [Plan Review](#)
[Coliform Summary](#) :: [Coliform Results](#) :: [Coliform Results before 2002](#) :: [Sampling Schedule for Coliform](#)
[Chemical Group Summary](#) :: [Latest Chemical Results](#) :: [Entry Point Detects](#) :: [Single Analyte Results](#)
[Chemical Schedule Summary](#) :: [Chemical Schedule Details](#)
[Lead & Copper](#) :: [Corrosion Control\(LCR\)](#) :: [Nitrates](#) :: [Arsenic](#) :: [Radionuclides](#)
[DBPs](#) :: [TOC & Alkalinity](#) :: [DBP/TOC/Bromate/Chlorine Monitoring](#) :: [FANLs](#) :: [MRDL](#) :: [Turbidity](#) :: [SWTR](#) :: [RAA](#)

SOURCE WATER ASSESSMENT REPORT

Summary of Analysis

**City of Canyon City
Canyon City, Oregon
Grant County
PWS #4100165**

June, 2005

Prepared By

Oregon Department of Human Services
Health Services
Drinking Water Program



And

Oregon Department of Environmental Quality
Water Quality Division
Drinking Water Protection



Available in Alternate Formats by contacting the DHS DWP at (541) 726-2587

TABLE OF CONTENTS

1. INTRODUCTION.....	1
2. WATER SYSTEM BACKGROUND.....	2
2.1 LOCATION OF THE DRINKING WATER SOURCES	2
2.2 SOURCE CONSTRUCTION	2
2.3 NATURE AND CHARACTERISTICS OF THE AQUIFERS	3
3. DELINEATION RESULTS.....	4
4. SENSITIVITY ANALYSIS RESULTS	6
5.1 POTENTIAL CONTAMINANT SOURCES WITHIN THE TWO-YEAR TIME-OF-TRAVEL ZONE FOR THE WELL.....	11
5.2 POTENTIAL CONTAMINANT SOURCES WITHIN THE FIVE-YEAR AND FIFTEEN-YEAR TIME-OF-TRAVEL ZONES FOR THE WELL	11
5.3 POTENTIAL CONTAMINANT SOURCES WITHIN ZONE ONE OF THE SPRINGS.....	12
5.4 POTENTIAL CONTAMINANT SOURCES WITHIN ZONE TWO OF THE SPRINGS	12
6. SUSCEPTIBILITY OF THE DRINKING WATER SOURCE	13
6.1 SUSCEPTIBILITY TO POTENTIAL CONTAMINANT SOURCES INSIDE THE DRINKING WATER PROTECTION AREAS.	13
6.2 WATER SYSTEM SUSCEPTIBILITY TO VIRAL CONTAMINANT SOURCES WITHIN THE TWO-YEAR TIME-OF-TRAVEL ZONE.	15
7. CONCLUSIONS	16
8. RECOMMENDED USE OF THE SOURCE WATER ASSESSMENT REPORT.....	17
APPENDICES.....	20

City of Canyon City

Source Water Assessment Report

Summary of Analysis

1. Introduction

The Source Water Assessment Program, mandated by the 1996 Amendments to the Safe Drinking Water Act, requires that states provide the information needed by public water systems to develop drinking water protection plans if they choose. That information includes the identification of the area most critical to maintaining safe drinking water, i.e., the Drinking Water Protection Area, an inventory of potential sources of contamination within the Drinking Water Protection Area, and an assessment of the relative threat that these potential sources pose to the water system.

The intent of this report is to present our conclusions regarding the source water assessment analysis for your water system. It is our hope that this information will be used as a basis for reducing the risk of contamination to your water source through the development of a voluntary Drinking Water Protection Plan (DWPP). Should you decided to proceed with the development of a DWPP, this document can serve as the foundation for the plan. If, however, a more in depth analysis of the local hydrogeology, water system susceptibility, and/or the water system specific assumptions is needed to help promote the development of a DWPP, a more comprehensive assessment analysis can be made available to you by contacting either the DHS Project Manager or the DHS Drinking Water Program Groundwater Coordinator.

The methodology that the Source Water Assessment results are based on is included in Appendix I, "Source Water Assessment Methodology". Appendix I includes a discussion of the source water assessment project; groundwater basics; and the processes involved with conducting the delineation, sensitivity analysis, potential contaminant source inventory, and overall water system susceptibility. Therefore, it is our intention that the assessment results, identified in this portion of the report, be used in conjunction with the methodology and rational presented in Appendix I. For instance, if questions arise regarding our conclusions with respect to a specific element of the assessment (i.e. type of delineation used, aquifer sensitivity, well construction sensitivity, etc...), the methodology that lead to our conclusions can be reviewed in Appendix I for further clarification.

We believe public awareness is a powerful tool for protecting drinking water and that the information provided in this report will help you increase local awareness regarding land use activities and local drinking water quality. We have also included a groundwater fact sheet in Appendix E and a list of Oregon specific drinking water protection information and resources in Appendix H.

2. Water System Background

The Canyon City water system is a publicly-owned system located in Grant County serving approximately 640 people. Currently there are 250 connections. Drinking water is supplied by two springs (Byrum Gulch and Tributary) and one well. The Springs are approximately three miles south of the City while the Well is within the City. The City operates four reservoirs with a combined capacity of approximately 750,000 gallons. The springs and the well are chlorinated. The City maintains an intertie with the City of John Day for emergency purposes.

2.1 Location of the Drinking Water Sources

We have located the system's wells using a Trimble GeoExplorer II Global Positioning System (GPS) unit. The data has been differentially corrected to remove some of the common positioning errors. The location of the source(s), with the corresponding Drinking Water Protection Area, has been placed in a Geographic Information System (GIS) layer and projected onto a USGS 7.5 minute topographic map that is included within this report. In order to be consistent with the topographic map, the projection uses the NAD1927 datum. The latitude and longitude values given on the map and below, however, reflect a projection in the more commonly used WGS1984 datum.

Data collection specifics include:

- 150 individual measurements,
- linked to a minimum of four satellites,
- a PDOP of less than 6 (pertains to precision of measurement), and
- a signal to noise ratio of greater than 5.

The raw data was subjected to differential correction using the PATHFINDER software. The location data for your drinking water source(s) using the WGS84 datum is as follows:

Source	Latitude	Longitude
Byrum Spring - Source AA	44° 20' 50.814" N	118° 56' 17.151" W
Tributary Spring - Source AB	44° 21' 05.430" N	118° 56' 19.826" W
Well - Source BA	44° 23' 36.739" N	118° 55' 59.944" W

2.2 Source Construction

The Byrum Gulch and Tributary Springs are believed to have been constructed in the early 1930s. Water from the Byrum Spring is captured by a concrete spring box that has been excavated into talus and bedrock. The water from the springs flows through a single distribution

line to two reservoirs having a combined capacity of 310,000 gallons prior to traveling to the main distribution lines within the City. The springs are protected by locked gates and utilize an impervious layer and are fenced, but neither had a watertight lid, a diversion ditch or a bottom drain when surveyed in 1998.

The Well was completed in November, 1963. A 15-inch hole was drilled to 50 feet and a 12-inch hole continued to 422 feet. Groundwater was reported at 234 feet. The static water level (depth to water in the well when the pump is at rest) was reported as 205 feet. Twelve-inch casing was installed from 2 feet below the surface to a depth of 358 feet. The casing was perforated in the interval of 220 to 310 feet. Bentonite, an expanding clay, was placed in the annular space between the 12-inch casing and the hole to a depth of 50 feet to serve as the casing seal. Based on the well report, the aquifer occurs at 234 feet below a 64 foot clay layer. The casing seal should have extended into that confining layer to a depth of 175 feet. In addition, the thickness of the casing seal does not meet construction standards as stipulated by the Oregon Water Resources Department. Regulations require a minimum thickness of 2 inches for seal. The seal for this well is only 1.5 inches in thickness. The well construction is therefore considered inadequate.

The well report for the Well is in the Appendix.

2.3 Nature and Characteristics of the Aquifers

The aquifer supplying the drinking water to the Springs consists of fractured ultramafic rocks such as serpentine. The aquifer supplying the Well consists of interbedded sediments, including sand and gravel, possibly water-reworked volcanic rocks of the Rattlesnake Formation.

As described in the well construction discussions above, the depth to first water encountered in the Well is deeper than the static water level after well completion. This implies that the groundwater is under pressure and that reworked volcanic aquifer should be considered confined, i.e., there are persistent materials of low permeability separating the aquifer from the surface. No well reports exist to describe the character of the aquifer supplying the Springs. Based on field observation, the rock is serpentine and is fractured on an E-W \pm 20° direction. Fractures appear to be dipping to the north. These fractures may have been important in the development of stream courses within the area. It is believed that groundwater emerges at various levels within the Byrum Gulch and Tributary watersheds and contribute flow to the streams. Water at the Spring Boxes may be entering from shallow saturated stream sediments from the stream as opposed to a fracture.

3. Delineation Results

The purpose of the Drinking Water Protection Area (DWPA) delineation is to identify the area that supplies the system's drinking water. For the springs, the DWPA would be the recharge area for the springs. For the groundwater that supplies the wells, the DWPA is that area at the surface that overlies the critical portion of the aquifer that supplies groundwater to the water system's wells. Therefore, DHS Drinking Water Program staff have collected and reviewed data for the purpose of delineating the DWPAs for your water system. The area included in the DWPA for the well is designed to approximate the next 15 years of groundwater supply for the water system and is shown in Figure 1b (Appendix). We have enhanced the usefulness of the DWPA map by identifying additional five-year, two-year, and one-year "Time-Of-Travel Zones" inside the DWPA.

The scope of work for this portion of the assessment included interviewing the water system operator, researching written reports, reviewing well logs, and establishing a base map of the delineated area. Based on reported water usage by the City and the potential for mutual interference of the wells (see Appendix for explanation of delineation process), the delineation of the DWPA for the well was accomplished using a calculated fixed radius (volumetric) method. Specific information regarding the parameters used in the delineation process including; the delineation method, estimated pump rate, and aquifer characteristics can be found in the Appendix.

Springs generally occur when precipitation, infiltrating from the surface, encounters a low permeability barrier and moves laterally along that barrier until it reaches the surface. In this case, we believe that local precipitation infiltrates and percolates downward into the fractured serpentine until it is directed toward the drainage wall as a spring site.

The delineation of the Drinking Water Protection Area (DWPA) for the springs has been identified by close inspection of the location of the Springs relative to local topography. The assumption is made that the springs are simple gravity-fed springs and that the contact that localizes the springs is at or above the elevation of the spring. The geologic control for the springs is likely to be the fractures within the serpentine. It is likely that the groundwater is derived through infiltration at higher locations in the spring areas. We identify the area of higher elevation to the immediate north and east of the springs as the approximate area of recharge.

In the delineation process, particularly where detailed geologic maps are unavailable, we assume that the geologic control of the springs (the impermeable barrier) is horizontal. We project this horizontal plane through the local topography to produce the initial boundary of the DWPA. We then modify that boundary to account for local drainages that likely will divert groundwater away from the spring. We check the delineation by calculating whether the area identified and the estimated recharge is sufficient to produce the amount of annual discharge from the spring.

We have identified Zone 1 and Zone 2 groundwater flow regimes to assist in developing management strategies. Zone 1 represents an area that groundwater would move quickly (within

1 year?) to the spring. Clearly if a contamination event occurred in Zone 1, the impact on the spring could be relatively rapid. Zone 2 represent longer times-of-travel for groundwater (5+ years?) and management efforts could be adjusted accordingly. It must be stressed that the time-of-travels listed here are speculation only and are given to provide a frame of reference for the groundwater flow regimes that supply the spring.

4. Sensitivity Analysis Results

After the Drinking Water Protection Area (DWPA) has been identified, aquifer susceptibility to potential contaminant sources inside the DWPA can be evaluated. Aquifer susceptibility is dependent on two factors, the natural environment's characteristics that permit migration of a contaminant into the aquifer (i.e., aquifer sensitivity) and the presence, distribution, and nature of the potential contaminant sources within the DWPA.

It should be understood that the public water system's drinking water source cannot be susceptible to contamination, even if potential contaminant sources are present, unless the watershed, aquifer and/or the constructed source water intake are sensitive to contamination. Therefore, the intent of the sensitivity analysis is to identify those areas within the DWPA where the watershed or aquifer is most sensitive to contamination. The analysis is based on data collected or generated during the DWPA delineation process and for groundwater systems, is designed to meet the needs of other existing or developing programs such as Monitoring Waivers and the Groundwater Rule.

The results of the sensitivity analysis are provided in the tables that follow. Information and sensitivity ratings regarding the aquifer and water quality are provided in Table 4.1 while information and sensitivity ratings regarding the wells and their construction is provided in Table 4.2. Sensitivity factors related to the watershed and infiltration gallery are given in Table 3. A clarification of the ratings is provided as comments where appropriate.

Based on this analysis, the groundwater sources for the Springs are moderately to highly sensitive while the source for the Well is considered to have a low to high sensitivity to contamination. This determination is based on the shallow character of the aquifer supplying the springs in the immediate vicinity of the spring discharge sites, the lack of a water-tight hatch at the springs, and the inadequate construction of the Well. Also contributing to sensitivity is the age of the springs and the Well and the lack of diversion ditches, the occurrence of nitrate below the drinking water standard but above what can be considered background levels in the Springs and the Well, and the proximity of surface water to the Byrum Gulch Spring.

Table 4.1a Aquifer Sensitivity Analysis (Well).

Parameter	Sensitivity			Comments
	H	M	L	
Depth to first water-bearing zone below casing seal.			✓	234 feet
Aquifer characteristics and hydraulic nature.			✓	Confined
Confining Layer thickness and characteristics.			✓	74 feet of clay
Highest soil sensitivity in Protection Area.		✓		
Traverse potential score (10 = High).			✓	Score = 1.5
Infiltration potential score (10 = High).			✓	Score = 1
Organic chemical detections.			✓	None
Inorganic chemical detections.			✓	
Source related coliform detections.			✓	None detected.
Nitrate concentrations (Drinking Water Standard = 10 mg/L).		✓		2.3 mg/L on 6/14/02
Fractured bedrock near surface in Protection Area.			✓	None present.
Other wells score (Significant Risk = 400).			✓	Score = 24
Surface water within 500 feet of wellhead.			✓	No
Other: N/A				

Table 4.1b Aquifer Sensitivity Analysis (Springs).

Parameter	Sensitivity			Comments
	H	M	L	
Thickness of overburden at outflow less than 50 feet?	✓			
Aquifer characteristics and hydraulic nature.	✓			Shallow unconfined immediately upslope from springs
Perched Spring?			✓	No
Highest soil sensitivity in Protection Area.		✓		
Traverse potential score (10 = High).		✓		Unknown
Infiltration potential score (10 = High).		✓		Unknown
Organic chemical detections.			✓	None
Inorganic chemical detections.			✓	None
Source related coliform detections.			✓	None
Nitrate concentrations (Drinking Water Standard = 10 mg/L).		✓		Up to 3.50 mg/L (7/20/01)
Fractured bedrock at outflow?		✓		Yes
Number of wells within 500 feet in DWPA? (3 = moderate; 5 = high)			✓	None
Specific Conductance less than 50 uS/cm?		✓		Unknown
Surface water within 500 feet of spring.		✓		Yes
Other: N/A				

Table 4.2a Well Construction Sensitivity Analysis.

Parameter	Sensitivity			Comments
	H	M	L	
Casing depth (feet).				358
Casing seal depth.				50 feet
Well construction setback deficiencies from site visit.			✓	None observed.
Well report information missing or unknown.			✓	No
Casing seal information missing or unknown.			✓	No
Casing seal material.			✓	Bentonite
Well open to multiple aquifers (commingling suspected).			✓	No, although loss or artesian pressure possible
Casing seal construction.	✓			Seal placed at inadequate depth and insufficient thickness
Age of well.		✓		1963

Table 4.2b Spring Construction Sensitivity Analysis

Parameter	Sensitivity			Comments
	H	M	L	
Watertight Hatch	✓			No
Screened Vent			✓	Yes
Well construction setback deficiencies from site visit	✓			Byrum Gulch, source of coliform within 25 feet
Diversion Ditch		✓		No
Spring Box Construction			✓	Cement
Fencing around spring Box			✓	Yes
Impermeable barrier			✓	Yes
Age of spring construction		✓		1930s (?)

5. Potential Contaminant Source Inventory

An inventory of potential contamination sources was performed within the Drinking Water Protection Area and the results are shown in Figure 2, Appendix B. The primary intent of the inventory was to identify and locate significant potential contaminant sources of concern. This inventory was conducted by reviewing applicable state and federal regulatory databases and land use maps, interviewing persons knowledgeable of the area, and conducting a windshield survey by driving through the drinking water protection area to field locate and verify as many of the potential contaminant source activities as possible. It is important to remember the sites and areas identified are only potential sources of contamination to the drinking water. Environmental contamination is not likely to occur when contaminants are used and managed properly.

5.1 Potential Contaminant Sources within the Two-Year Time-of-Travel Zone for the Well

The delineated two-year time of travel zone is primarily dominated by rural residential land use. One potential contaminant source location (Reference Number 1 on Figure 2 and Table 2 in the Appendix Materials) was identified in the two-year time-of-travel zone and is a rural home. The potential contaminant source within the two-year time-of-travel poses a relatively lower risk to the drinking water supply. There were no facilities or sites identified on the regulatory databases that were searched within the Drinking Water Protection Area.

5.2 Potential Contaminant Sources within the Five-Year and Fifteen-Year Time-of-Travel Zones for the Well

The drinking water protection area within the five-year and fifteen-year time-of-travel zones is primarily occupied by rural residential land use. One potential contaminant source location was identified in this area which is detailed on Table 2 in the Appendix Materials and is an unknown operation. The potential contaminant source within the five-year and fifteen-year time-of-travel poses a relatively moderate risk to the drinking water supply. Area-wide potential sources such as the residential extend from the two-year time-of-travel zone into the fifteen-year time-of-travel zone. These land uses occur throughout the drinking water protection area and are shown on Figure 2 in the location nearest to the well.

5.3 Potential Contaminant Sources within Zone One of the Springs

The delineated zone one for both springs is primarily dominated by forestry land use. One potential contaminant source location (Reference Number 1 on Figure 2 and Table 2 in the Appendix Materials) was identified in zone one of the springs and is managed forest land. The potential contaminant source within zone one poses a relatively higher to moderate risk to the drinking water supply. There were no facilities or sites identified on the regulatory databases that were searched within the Drinking Water Protection Area.

5.4 Potential Contaminant Sources within Zone Two of the Springs

The drinking water protection area within zone two of the spring is primarily occupied by forestry land use. One potential contaminant source location was identified in this area which is detailed on Table 2 in the Appendix Materials and is a mine. The potential contaminant source within zone two pose a relatively higher risk to the drinking water supply. Area-wide potential sources such as the forested areas extend from zone one into zone two. These land uses occur throughout the drinking water protection area and are shown on Figure 2 in the location nearest to the well.

6. Susceptibility of the Drinking Water Source

In general, Potential Contaminant Sources (PCSs) within the shorter time-of-travel zones pose a greater risk than those in the longer time-of-travel zones. Also of concern is the location and distribution of these sources with respect to high and moderately sensitive areas. Overlaying the PCS location map (Figure 2, Appendix B) on top of the sensitivity map for the water system provides a tool to determine the susceptibility of the community's drinking water supply to contamination from each PCS (see Figure 3, Appendix B).

6.1 Susceptibility to Potential Contaminant Sources Inside the Drinking Water Protection Areas.

Table 6.1, indicates the relationship between potential contaminant source risk, aquifer sensitivity, and estimated contaminant arrival time at the well, wellfield, and/or spring. The community can use the PCS location numbers on the inventory map in conjunction with the displayed aquifer sensitivity and relative risk rankings for each PCS from Table 2 (Appendix C) to identify the susceptibility of the drinking water source to contamination from each PCS and take steps to reduce the risk accordingly.

We have attempted to quantify the relative susceptibility of the water system with regard to the PCSs present in the Drinking Water Protection Areas (DWPAs) using Table 6.1. Across the top of the table, each Time-of-Travel (TOT) zone is subdivided to account for areas of high, moderate, and low sensitivity that may exist between each TOT. Potential contaminant source risk categories (high, moderate, and low) are listed down the left hand side of the table. The relative aquifer susceptibility to each PCS is demonstrated by the shading of each cell in the table. Cells that are shaded dark gray indicate a highly-susceptible condition, light gray shaded cells indicate a moderately-susceptible condition, and white cells indicate conditions of low susceptibility. The number in each cell indicates the number of potential contaminant sources that meet the conditions for that cell. Cells that do not contain a number indicate that there are no known potential contaminant sources that meet the conditions for the cell. Potential contaminant sources that meet the specific criteria for a cell in Table 6.1 can be identified by reviewing Table 2 in Appendix C. The number of potential contaminant sources is totaled across the bottom of the table.

Table 6.1. Canyon City Well Susceptibility as a Function of PCS Risk, TOT Zone, and Aquifer Sensitivity.									
	2-Yr TOT			2- to 5-Yr TOT			5- to 15-Yr TOT		
	High	Mod	Low	High	Mod	Low	High	Mod	Low
High Risk PCSs									
Moderate Risk PCSs									1
Low Risk PCSs			1			1			1
Total PCSs			1			1			2

Table 6.2. Canyon City Susceptibility as a Function of Sensitive Areas Within the Spring Recharge Area.		
	Zone 1	Zone 2
High Risk PCSs		1
Moderate Risk PCSs	1	1
Low Risk PCSs		
Total PCSs	1	2

The distribution of high, moderate, and low sensitivity areas inside the groundwater Drinking Water Protection Area can be determined using either soil sensitivity (permeability) or the mapped distribution of Traverse Potential (TP) or Infiltration Potential (IP). In the case of the Canyon City 's Well, we have decided to rely upon the Infiltration Potential for the Well to define the sensitivity areas. The IP score for the well indicates a low sensitivity. For the springs we have relied on the soil permeability within the DWPA except for those areas close to the spring discharge points where the thin character of the overburden above the aquifer indicates a highly sensitive character.

During the potential contaminant source inventory, a total of four potential contaminant source locations and seven potential contaminant sources were identified inside the DWPA. If any of these potential contaminant sources have been identified as an area-wide source, they have been evaluated with respect to each zone in which they occur. As a result, the total number of potential contaminant sources evaluated in the above susceptibility tables may exceed the

number identified on the potential contaminant source inventory map (Figures 2a & 2b in the Appendix).

As indicated in the Table 6.1, one potential contaminant source occurs inside the 2-year TOT, one source falls between the 2- and 5-year TOTs, and two sources have been identified between the 5- and 15-year TOTs. The potential contaminant source identified inside the 2-year TOT is of low-risk. Based on the analysis results shown in the relative susceptibility Table 6.1, we do not consider the Canyon City Well to be susceptible to the low-risk potential contaminant source identified inside the 2-year TOT (Potential contaminant Source Reference No. 1 on Figure 3b in the Appendix).

As indicated in the Table 6.2, one potential contaminant source occurs inside Zone 1 and two sources fall inside Zone 2. The potential contaminant source identified inside the 2-year TOT is of moderate-risk. Based on the analysis results shown in the relative susceptibility Table 6.2, we consider the Canyon City Springs to be highly susceptible to the moderate-risk potential contaminant source identified inside the 2-year TOT (Potential contaminant Source Reference No. 3 on Figure 3a in the Appendix). **Therefore we recommend that this potential contaminant source not only be addressed in any Drinking Water Protection Plan but also in any Water System Emergency Response Plan.**

As a result of this analysis, we recommend that the water system develop a Drinking Water Protection Plan that addresses all high- and moderate-risk potential contaminant sources within the DWPA, beginning with those sources which represent the greatest susceptibility risk. At a minimum, the water system should work with representatives from those PCSs posing a moderate- to high-susceptibility risk within the DWPA to (1) determine the level of environmental protection employed in the day-to-day operations of the facility and (2) identify any reasonable Best Management Practices that will lead to an overall reduction of contamination risk.

6.2 Water System Susceptibility to Viral Contaminant Sources within the Two-Year Time-of-Travel Zone.

The area within the two-year TOT roughly identifies the next two years of groundwater supply for the water system. The two-year time frame is used as a conservative estimate of the survival time for some viruses. **Based on the assessment results, the drinking water sources are considered highly sensitive for both the Well and the Springs. These sources, therefore, are considered susceptible to viral contamination because viral sources , e.g., septic systems, surface water, etc., were found within the 2-year time-of-travel of the Well and/or Zone 1 of the Springs.**

7. Conclusions

The Canyon City's water system draws water from two separate aquifers. The City's Well draws from reworked volcanic sediments of the Rattlesnake Formation, while the Springs produce from older fractured serpentine. Assessment results indicate that the water system would be moderately to highly susceptible to a contamination event inside the identified Drinking Water Protection Area. The presence of a couple high- and moderate-risk potential contaminant sources within the protection area was confirmed through a potential contaminant source inventory. Under a "worst case" scenario, where it is assumed that nothing is being done to protect groundwater quality at the identified potential contaminant sources, the assessment results indicate that the water system would be highly susceptible to a couple of the identified potential contaminant sources within the Springs Drinking Water Protection Area. In addition, the assessment results indicate that, at this time, the water system is considered susceptible to viruses at the Well and the Spring Sources.

8. Recommended Use of the Source Water Assessment Report

The costs associated with contaminated drinking water are high. Developing an approach to protect that resource, such as a Drinking Water Protection Plan, can reduce the potential for contamination of the local drinking water supply. This report contains a summary of the local geology and well construction issues as they pertain to the quality of your drinking water source. We have identified the area we believe to be most critical to preserving your water quality (the Drinking Water Protection Area) and have identified potential sources of contamination within that area. In addition, we provide you with recommendations, i.e., Best Management Practices, regarding the proper use and practices associated with some common potential contamination sources (Appendix G). We believe public awareness is a powerful tool for protecting drinking water and that the information provided in this report will help you increase local awareness regarding the relationship between land use activities and drinking water quality. To that end, the process for developing a Drinking Water Protection Plan can be summarized as follows:

Assessment Phase (Source Water Assessment Provided by DHS and DEQ)

- Delineate the area that serves as the source of the public water supply (Drinking Water Protection Area (DWPA))
- Inventory the potential risks or sources of contamination within the DWPA
- Determine the areas most susceptible to contamination

Protection Phase (performed by the water system or community)

- Assemble a local Drinking Water Protection Team
- Enhance the Source Water Assessment if necessary
- Develop a plan to reduce the risk of contamination (protect the resource)
- Develop a contingency plan to address the potential loss of the drinking water supply
- Certify (optional) and implement the Drinking Water Protection Plan

The assessment phase was funded by the federal Safe Drinking Water Act. Its purpose is to supply the water system with the information necessary to develop a Drinking Water Protection Plan. In Oregon, development of a protection plan is voluntary.

Prior to moving into the protection phase, DEQ recommends the inventory presented in this document be reviewed in detail to clarify the presence, location, operational practices, actual risks, etc., of the identified facilities and land use activities. The Source Water Assessment (SWA) inventory should be regarded as a preliminary review of potential sources of contamination within the drinking water protection area. Resources within the community

should be used to do an “enhanced inventory” to refine this preliminary list of potential contaminant sources.

It is also important to remember that not all of the inventoried activities will need to be addressed if you choose to develop a Drinking Water Protection Plan. When developing a protection plan, potential contaminant sources which pose little or no threat to your drinking water supply can be screened out. For example, if any of the land use activities are conducted in a manner that already significantly reduces the risk of a contamination release, the facility would not need to re-evaluate their practices based on drinking water protection “management”. One of the goals for developing a plan based on the inventory results is to address those land use activities that do pose high or moderate risks to your public water supply. The system should target these facilities with greater levels of education and technical assistance to minimize the risk of contamination.

Limited technical assistance is available through the DEQ and Drinking Water Program at DHS for water systems that choose to move beyond the assessments and voluntarily develop a Drinking Water Protection Plan. By using the results of the assessment, the water system/community can form a Drinking Water Protection Team comprised of individuals that have a stake in the plan’s implementation.

Forming a local team to help with the development of a protection plan is very important. Oregon’s drinking water protection approach relies upon the concept of “community based protection”, as are many other water quality programs. This simply refers to the concept of allowing local control and decision-making to implement the water quality protection effort. Community-based protection is successful only with significant local citizen stakeholder involvement. Community-based protection can draw on the knowledge and successful adaptive practices within the area. Landowners generally know best how to achieve water resource restoration and protection as long as a thorough explanation of the problem is provided, the objectives to solve the problem are clearly defined, and technical assistance is available.

In community-based protection, citizens have more control and are therefore more likely to participate in the program and be more willing to assist with the educational and outreach effort which will make the plan successful. We recommend that the protection plan be developed so as to minimize any burdens on individual property owners, but maximize the equity in responsibility for reducing the risks of future contamination.

Protecting the drinking water supply in a community can also be a very effective way to encourage all citizens to participate in issues which directly affect everyone in that community. This often leads to more public involvement in other significant local decisions concerning future livability issues, e.g., land use planning. In communities already developing and implementing Drinking Water Protection Plans, the process has served to bring many diverse interests together on a common goal and strengthen the local rural and urban relationships through communication and increased understanding. The risks and sources of water quality problems are not only from industries, farmers, and managed forest, but every individual living, commuting, and working in that area.

Communities/water systems interested in developing Drinking Water Protection Plans may contact the Department of Environmental Quality (503-229-5413) or the DHS Drinking Water Program (541-726-2587) for further information.

Appendices

- A. References
- B. Figures
- C. Inventory of Potential Contaminant Sources
- D. Well Reports
- E. Parameters Used in Delineation Model
- F. Groundwater Fact Sheet
- G. BMPs for Activities Commonly found in Drinking Water Protection Areas
- H. Drinking Water Protection in Oregon
- I. Source Water Assessment Methodology

Additional copies of the appendix materials are available upon written request to the following address:

**Groundwater Coordinator
Drinking Water Program
Department of Human Services
444 A Street
Springfield, OR 97477**

Appendix A: References

- Gonthier, J.B., 1985. A Description of Aquifer Units in Eastern Oregon. U.S. Geological Survey Water-Resources Investigations Report 84-4095.
- Stewart, S. and Nelson, D., 1996. Oregon Wellhead Protection Program Guidance Manual. Oregon Department of Environmental Quality (available at <http://www.deq.state.or.us/wq/dwp/dwphome.htm>).
- Stewart, S. and Nelson, D., 1999. Oregon Source Water Assessment Plan. Oregon Department of Environmental Quality.
- Walker, G.W. and MacLeod, N.S., 1991. Geologic Map of Oregon. U.S. Geological Survey.

Appendix B: Figures

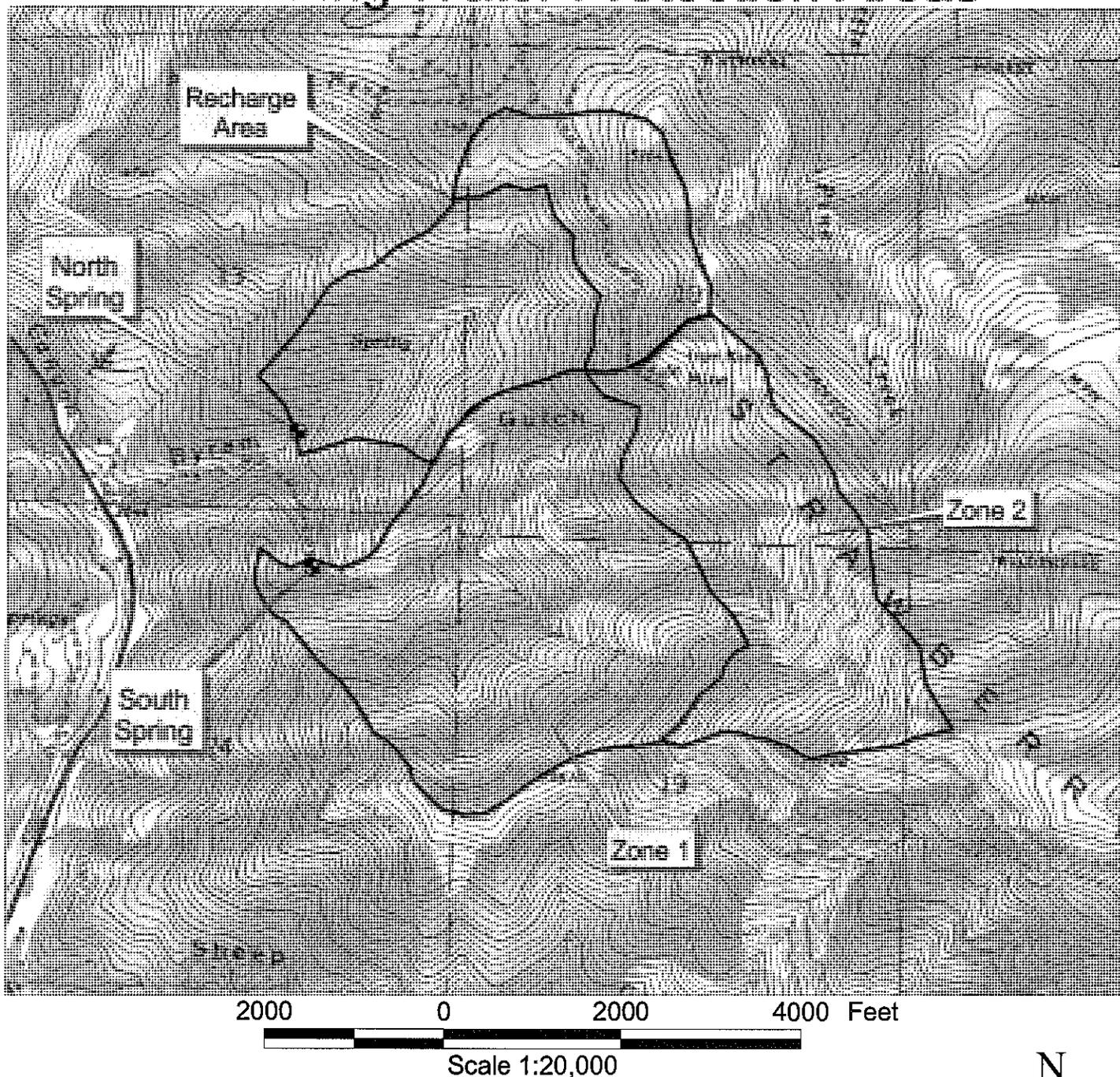
Figure 1: Drinking Water Protection Area

Figure 2: Potential Contaminant Survey

Figure 3: Drinking Water Source Susceptibility

Canyon City Springs Drinking Water Protection Areas

Figure 1a



Drinking Water Protection Areas for City's Springs.
Delineation based on the assumption that the primary contribution to the springs is the seepage into the bedrock fractures of precipitation that falls within the respective watersheds or recharge areas. Zones 1 and 2 represent shorter and longer term residence time, respectively, for groundwater in the aquifer. Bedrock is fractured serpentine with NW and NE trending fractures.

Spring Locations (WGS1984 datum):
Tributary Spring (North):
44°21'05.430"N 118°56'19.826"W
T14S R31E Sec 13
Byram Gulch Spring I.G. (South):
44°20'50.814"N 118°56'17.151"W
T14S R31 E Sec 24

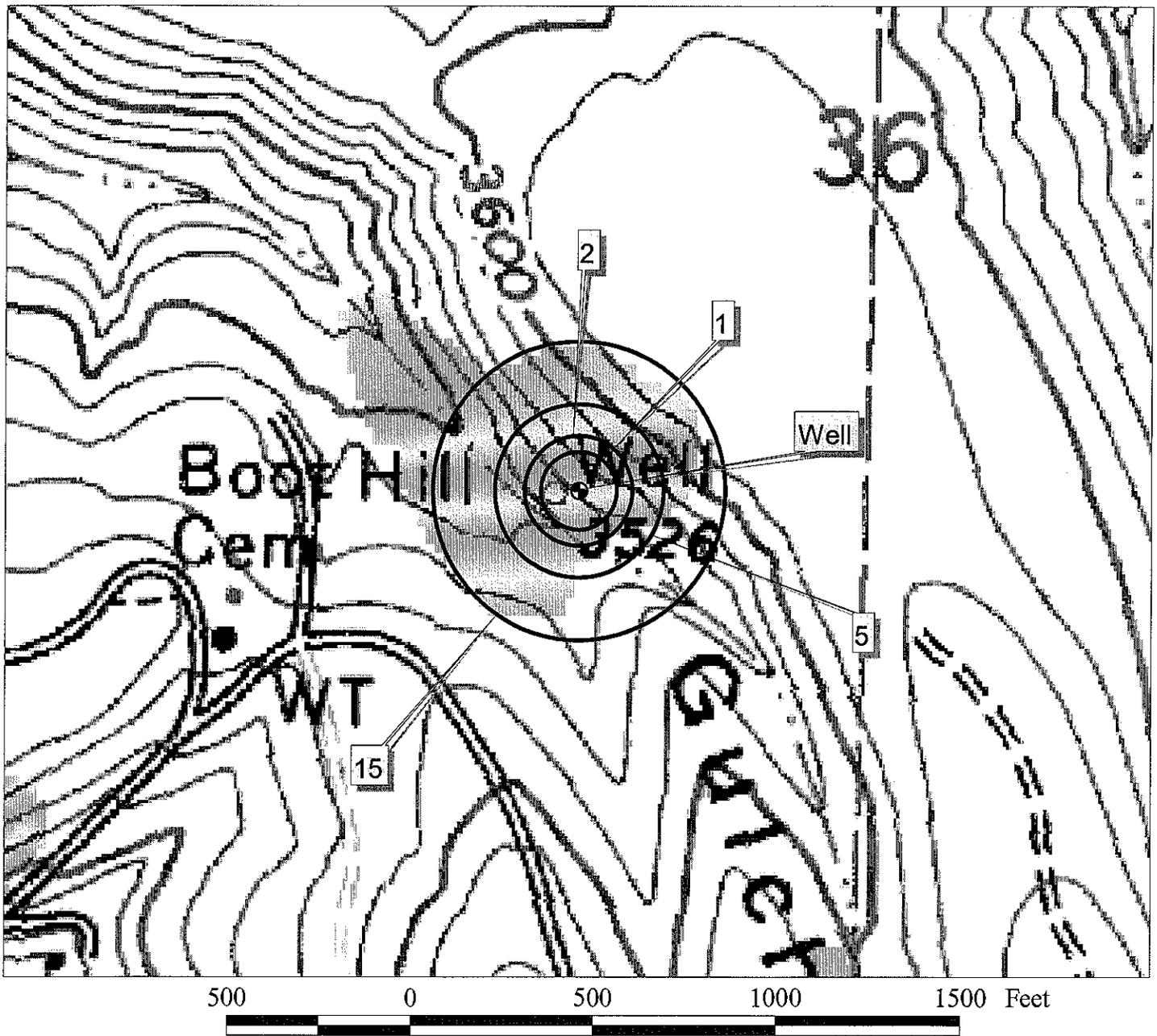
USGS Canyon Mountain 7.5-minute topographic quadrangle
Grant County



Delineation by: Dennis Nelson RG1224
Drinking Water Program
Oregon Department of Human Services
July 2, 2004
PWS#4100165

Canyon City Well Drinking Water Protection Area

Figure 1b



**Drinking Water Protection Area (DWPA)
1, 2, 5, and 15 Year Time of Travel (TOT)
for groundwater to move through the aquifer
to the well are shown as concentric circles
Calculated Fixed Radius Method**

Scale 1: 5,000

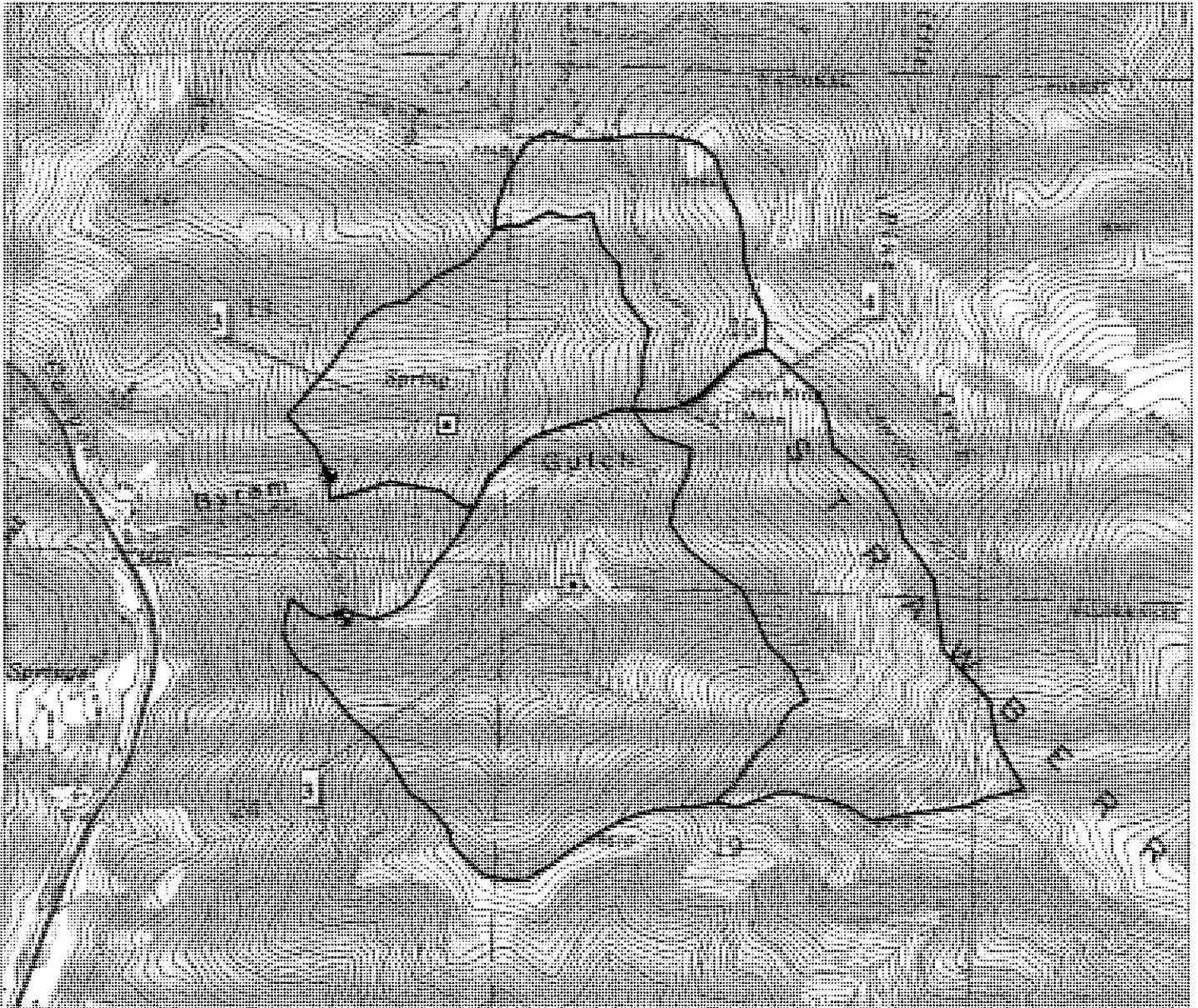
Well Location (WGS84 Datum):
44°23'36.739"N 118°55'59.944"W
T13S R31E Sec 36
USGS John Day 7.5-minute topographic
quadrangle
Grant County

Model Parameters
Production Interval (ft): 29
Effective Porosity: 0.23
Usage (gal/day): 4600

Prepared by: Dennis Nelson RG1224
Drinking Water Program
Oregon Department of Human Services
PWS#: 4100165
July 8, 2004



Figure 2a. Canyon City Springs Potential Contaminant Sources



2000 0 2000 4000 Feet



Scale 1: 20,000

USGS Canyon Mountain, OR Quadrangle
(part section) 7.5' Series (Topographic)

Drinking Water Protection Area (DWPA)

Potential Contaminant Sources

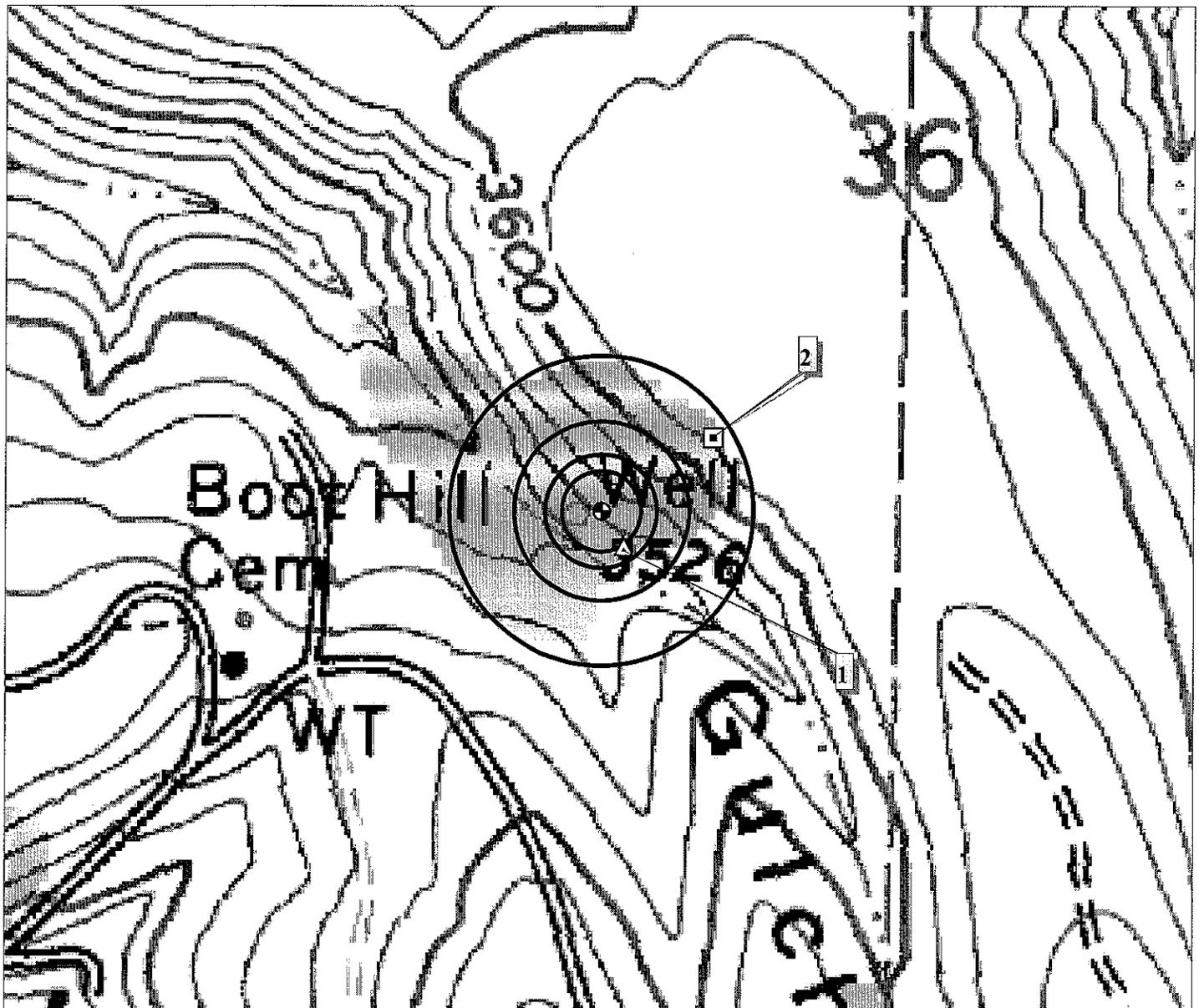
- ⊕ Higher Relative Risk
- ▣ Moderate Relative Risk
- △ Low Relative Risk



Prepared by: KK 06/06/2005
Project Manager: DN RG#1224
PWS#: 4100165

Note: Sites and areas noted in this figure are potential sources of contamination to the drinking water as identified by Oregon Drinking Water Protection Staff. Environmental contamination is not likely to occur when chemicals are used managed properly. Numbers indicate potential contaminant sources outlined in Table 2 in the Appendix.

Figure 2b. Canyon City Well Potential Contaminant Sources



500 0 500 1000 1500 Feet

USGS John Day, OR Quadrangle
(part section) 7.5' Series (Topographic)

Scale 1: 5,000

Drinking Water Protection Area (DWPA)
1, 2, 5, and 15 Year Time of Travel (TOT)
CFR Method
Potential Contaminant Sources

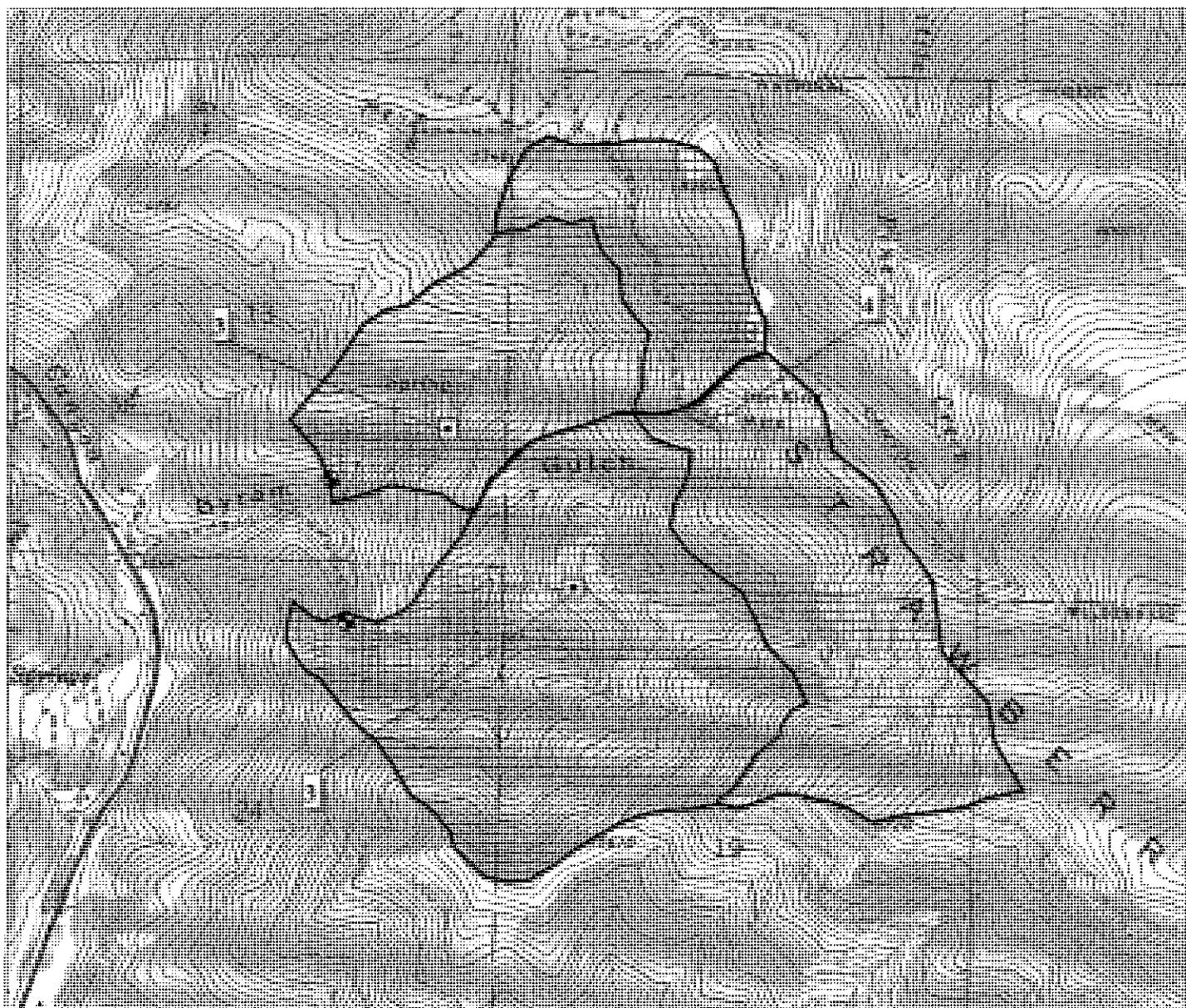
- ⊕ Higher Relative Risk
- ▣ Moderate Relative Risk
- △ Low Relative Risk



Prepared by: KK 06/06/2005
Project Manager: DN RG#1224
PWS#: 4100165

Note: Sites and areas noted in this figure are potential sources of contamination to the drinking water as identified by Oregon Drinking Water Protection Staff. Environmental contamination is not likely to occur when chemicals are used managed properly. Numbers indicate potential contaminant sources outlined in Table 2 in the Appendix.

Figure 3a. Canyon City Springs Drinking Water Source Susceptibility Map



2000 0 2000 4000 Feet



Scale 1: 20,000

USGS Canyon Mountain, OR Quadrangle
(part section) 7.5' Series (Topographic)

Drinking Water Protection Area (DWPA)

Potential Contaminant Sources

- ⊕ Higher Relative Risk
- Moderate Relative Risk
- △ Low Relative Risk

Sensitivity Analysis

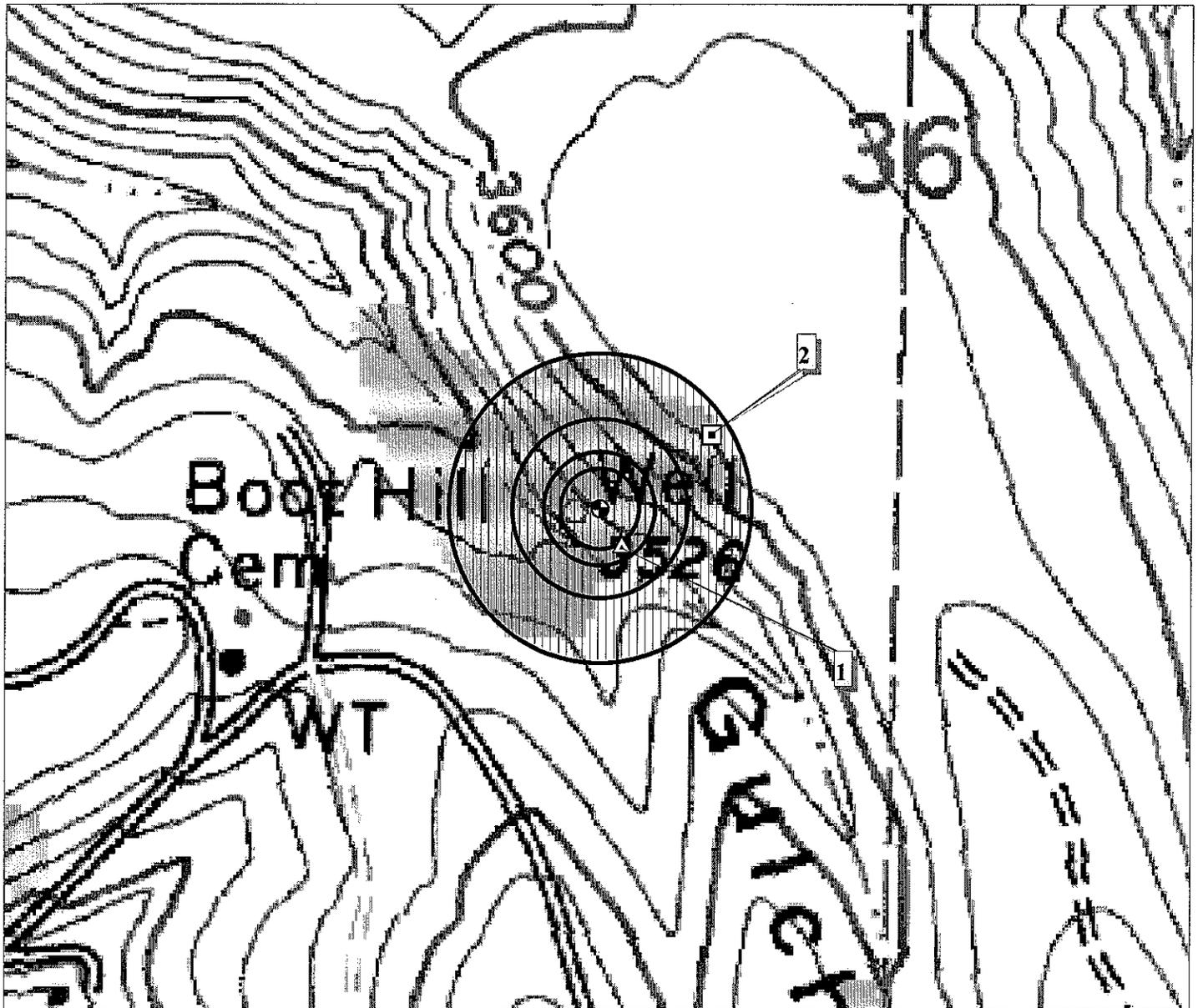
- High Sensitivity
- Moderate Sensitivity
- Low Sensitivity



Prepared by: KK 06/06/2005
Project Manager: DN RG#1224
PWS#: 4100165

Note: Sites and areas noted in this figure are potential sources of contamination to the drinking water as identified by Oregon Drinking Water Protection Staff. Environmental contamination is not likely to occur when chemicals are used managed properly. Numbers indicate potential contaminant sources outlined in Table 2 in the Appendix.

Figure 3b. Canyon City Well Drinking Water Source Susceptibility Map



500 0 500 1000 1500 Feet



Scale 1: 5,000

USGS John Day, OR Quadrangle
(part section) 7.5' Series (Topographic)

Drinking Water Protection Area (DWPA)

Potential Contaminant Sources

- ⊕ Higher Relative Risk
- ▣ Moderate Relative Risk
- △ Low Relative Risk

Sensitivity Analysis

- ▨ High Sensitivity
- ▧ Moderate Sensitivity
- ▩ Low Sensitivity



Prepared by: KK 06/06/2005
Project Manager: DN RG#1224
PWS#: 4100165

Note: Sites and areas noted in this figure are potential sources of contamination to the drinking water as identified by Oregon Drinking Water Protection Staff. Environmental contamination is not likely to occur when chemicals are used managed properly. Numbers indicate potential contaminant sources outlined in Table 2 in the Appendix.

**APPENDIX - INVENTORY OF POTENTIAL CONTAMINANT SOURCES
CANYON CITY WATER DEPARTMENT - PWS # 4100165
OREGON SOURCE WATER ASSESSMENT**

Inventory Results

Table 1. Summary of Potential Contaminant Sources by Land Use

Table 2. Inventory Results - List of Potential Contaminant Sources

Table 3. Results of Regulatory Database Search

Notes for Tables:

Sites and areas identified in these Tables are only potential sources of contamination to the drinking water. Environmental contamination is not likely to occur when contaminants are used and managed properly.

Total number of sources listed in Table 1 in the DWPA may not add up to the total number of potential contaminants sources in Table 2 because more than one type of potential contaminant source may be present at any given facility.

Data collected by Sue Gries Oregon DEQ on 5/18/2005.

Information from applicable state and federal regulatory databases is current as of 9/27/2004.

Acronyms:

AST - Aboveground Storage Tank
DC - DEQ's Dry Cleaner database
DEQ - Oregon Department of Environmental Quality
DWPA - Drinking Water Protection Area
ECSI - DEQ's Environmental Cleanup Site Information database
HWIMSY - DEQ's Hazardous Waste Information Management System database
LUST - DEQ's Leaking Underground Storage Tank database
NPDES - National Pollution Discharge Elimination System
PCS - Potential Contaminant Source
PWS - Public Water System
SFM - State Fire Marshall's database of hazardous materials
SIS - DEQ's Source Information System database (includes WPCF & NPDES permits)
SWMS - DEQ's Solid Waste Management System database
UST - DEQ's Underground Storage Tank database or Underground Storage Tank
WPCF - Water Pollution Control Facility
WRD - Oregon Water Resources Division database for water rights information

TABLE 1. SUMMARY OF POTENTIAL CONTAMINANT SOURCES BY LAND USE

PWS # 4100165 CANYON CITY WATER DEPARTMENT

Residential/Municipal Land Uses

Potential Contamination Source	Notes	Relative Risk Level	Total in DWPA
Airport - Maintenance/Fueling Area		Higher	0
Apartments and Condominiums		Lower	0
Campgrounds/RV Parks	(1)	Lower	0
Cemeteries - Pre-1945		Moderate	0
Drinking Water Treatment Plants		Moderate	0
Fire Station		Lower	0
Fire Training Facilities		Moderate	0
Golf Courses		Moderate	0
Housing - High Density (> 1 House/0.5 acres)		Moderate	0
Landfill/Dumps	(1)	Higher	0
Lawn Care - Highly Maintained Areas		Moderate	0
Motor Pools		Moderate	0
Parks		Moderate	0
Railroad Yards/Maintenance/Fueling Areas		Higher	0
Schools		Lower	0
Septic Systems - High Density (> 1 system/acre)	(1)	Higher	0
Sewer Lines - Close Proximity to PWS	(1)	Higher	0
Utility Stations - Maintenance Transformer Storage		Higher	0
Waste Transfer/Recycling Stations	(1)	Moderate	0
Wastewater Treatment Plants/Collection Stations	(1)	Moderate	0
Other			0

NOTES:

Sites and areas identified in this Table are only potential sources of contamination to the drinking water. Environmental contamination is not likely to occur when contaminants are used and managed properly.

(1) - Potential source of microbial contamination

(2) - Drip irrigated crops, such as vineyards and some vegetables, are considered lower risk than spray irrigation

(3) - For groundwater public water systems, septic systems located within the 2-year time-of-travel (TOT) are considered moderate risks.

TABLE 1. SUMMARY OF POTENTIAL CONTAMINANT SOURCES BY LAND USE

PWS # 4100165 CANYON CITY WATER DEPARTMENT

Commercial/Industrial Land Uses

Potential Contamination Source	Notes	Relative Risk Level	Total in DWPA
Automobiles - Body Shops		Higher	0
Automobiles - Car Washes		Moderate	0
Automobiles - Gas Stations		Higher	0
Automobiles - Repair Shops		Higher	0
Boat Services/Repair/Refinishing		Higher	0
Cement/Concrete Plants		Moderate	0
Chemical/Petroleum Processing/Storage		Higher	0
Dry Cleaners		Higher	0
Electrical/Electronic Manufacturing		Higher	0
Fleet/Trucking/Bus Terminals		Higher	0
Food Processing		Moderate	0
Furniture/Lumber/Parts Stores		Moderate	0
Home Manufacturing		Higher	0
Junk/Scrap/Salvage Yards		Higher	0
Machine Shops		Higher	0
Medical/Vet Offices	(1)	Moderate	0
Metal Plating/Finishing/Fabrication		Higher	0
Mines/Gravel Pits		Higher	1
Office Buildings/Complexes		Lower	0
Parking Lots/Malls (> 50 Spaces)		Higher	0
Photo Processing/Printing		Higher	0
Plastics/Synthetics Producer		Higher	0
Research Laboratories		Higher	0
RV/Mini Storage		Lower	0
Wood Preserving/Treating		Higher	0
Wood/Pulp/Paper Processing and Mills		Higher	0
Other			0

NOTES:

Sites and areas identified in this Table are only potential sources of contamination to the drinking water. Environmental contamination is not likely to occur when contaminants are used and managed properly.

(1) - Potential source of microbial contamination

(2) - Drip irrigated crops, such as vineyards and some vegetables, are considered lower risk than spray irrigation

(3) - For groundwater public water systems, septic systems located within the 2-year time-of-travel (TOT) are considered moderate risks.

TABLE 1. SUMMARY OF POTENTIAL CONTAMINANT SOURCES BY LAND USE

PWS # 4100165 CANYON CITY WATER DEPARTMENT

Agricultural/Forest Land Uses

Potential Contamination Source	Notes	Relative Risk Level	Total in DWPA
Auction Lots	(1)	Higher	0
Boarding Stables	(1)	Moderate	0
Confined Animal Feeding Operations (CAFOs)	(1)	Higher	0
Crops - Irrigated (inc. orchards, vineyards, nurseries, greenhouses)	(2)	Moderate	0
Crops - Nonirrigated (inc. Christmas trees, grains, grass seed, pasture)		Lower	0
Farm Machinery Repair		Higher	0
Grazing Animals (> 5 large animals or equivalent/acre)	(1)	Moderate	0
Lagoons/Liquid Wastes	(1)	Higher	0
Land Application Sites	(1)	Moderate	0
Managed Forest Land - Broadcast Fertilized Areas		Lower	0
Managed Forest Land - Clearcut Harvest (< 35 yrs.)		Moderate	0
Managed Forest Land - Partial Harvest (< 10 yrs.)		Moderate	0
Managed Forest Land - Road Density (> 2 mi./sq. mi.)		Moderate	0
Pesticide/Fertilizer/Petroleum Storage, Handling, Mixing, & Cleaning Ar		Higher	0
Recent Burn Areas (< 10 yrs.)		Lower	0
Managed Forest Lands - Status Unknown		Moderate	2
Other			0

NOTES:

Sites and areas identified in this Table are only potential sources of contamination to the drinking water. Environmental contamination is not likely to occur when contaminants are used and managed properly.

(1) - Potential source of microbial contamination

(2) - Drip irrigated crops, such as vineyards and some vegetables, are considered lower risk than spray irrigation

(3) - For groundwater public water systems, septic systems located within the 2-year time-of-travel (TOT) are considered moderate risks.

TABLE 1. SUMMARY OF POTENTIAL CONTAMINANT SOURCES BY LAND USE

PWS # 4100165 CANYON CITY WATER DEPARTMENT

Miscellaneous Land Uses

Potential Contamination Source	Notes	Relative Risk Level	Total in DWPA
Above Ground Storage Tanks - Excluding Water		Moderate	0
Channel Alterations - Heavy		Lower	0
Combined Sewer Outfalls	(1)	Lower	0
Stormwater Outfalls	(1)	Lower	0
Composting Facilities	(1)	Moderate	0
Historic Gas Stations		Higher	0
Historic Waste Dumps/Landfills	(1)	Higher	0
Homesteads - Rural - Machine Shops/Equipment Maintenance		Higher	0
Homesteads - Rural - Septic Systems (< 1/acre)	(1)(3)	Lower	1
Injection/Dry Wells, Sumps - Class V UICs	(1)	Higher	0
Kennels (> 20 Pens)	(1)	Lower	0
Military Installations		Higher	0
Random Dump Sites		Moderate	0
River Recreation - Heavy Use (inc. campgrounds)	(1)	Lower	0
Sludge Disposal Areas	(1)	Moderate	0
Stormwater Retention Basins	(1)	Moderate	0
Transmission Lines - Right-of-Ways		Lower	0
Transportation - Freeways/State Highways/Other Heavy Use Roads		Moderate	0
Transportation - Railroads		Moderate	0
Transportation - Right-Of-Ways - Herbicide Use Areas		Moderate	0
Transportation - River Traffic - Heavy		Lower	0
Transportation - Stream Crossing - Perennial		Lower	0
UST - Confirmed Leaking Tanks - DEQ List		Higher	0
UST - Decommissioned/Inactive		Lower	0
UST - Nonregulated Tanks (< 1,100 gals or Large Heating Oil Tanks)		Higher	0
UST - Not Upgraded and/or Registered Tanks		Higher	0
UST - Upgraded/Registered - Active		Lower	0
UST - Status Unknown		Higher	0
Upstream Reservoirs/Dams		Lower	0
Wells/Abandoned Wells		Higher	0
Large Capacity Septic Systems (serves > 20 people) - Class V UICs	(1)	Higher	0
Construction/Demolition Areas		Moderate	0
Other: - Unknown Operation		Moderate	1

NOTES:

Sites and areas identified in this Table are only potential sources of contamination to the drinking water. Environmental contamination is not likely to occur when contaminants are used and managed properly.

(1) - Potential source of microbial contamination

(2) - Drip irrigated crops, such as vineyards and some vegetables, are considered lower risk than spray irrigation

(3) - For groundwater public water systems, septic systems located within the 2-year time-of-travel (TOT) are considered moderate risks.

TABLE 2. INVENTORY RESULTS - LIST OF POTENTIAL CONTAMINANT SOURCES

PWS# 4100165 CANYON CITY WATER DEPARTMENT

Reference No. (See Figure)	Potential Contaminant Source Type	Name	Approximate Location	City	Method for Listing	Proximity to Sensitive Areas	Relative Risk Level (1)	Potential Impacts	Comments
1	Homes/Leads - Rural - Septic Systems (< 1/acre)	Rural Homes	Throughout the DWPA	Canyon City	Interview	Within the 2-yr TOT	Lower	If not properly sited, designed, installed, and maintained, septic systems can impact drinking water. Use of drain cleaners and dumping household hazardous wastes can result in groundwater contamination.	Site is beyond public access, no visual observation - needs verification.
2	Other - Unknown Operation	Unknown Operation	Northeast of Well	Canyon City		Between 5-yr and 15-yr TOT	Moderate	The impacts of this potential contaminant source will be addressed during the enhanced inventory.	Location for aerial photograph. Site is beyond public access, no visual observation - needs verification.
3	Managed Forest Lands - Status Unknown	Managed Forest Lane	Throughout the DWPA	Canyon City	Interview	Zone 1	Moderate	Cutting and yarding of trees may contribute to increased erosion, resulting in turbidity and chemical changes in drinking water supply. Over-application or improper handling of pesticides or fertilizers may impact drinking water source.	
	Managed Forest Lands - Status Unknown						Moderate	Cutting and yarding of trees may contribute to increased erosion, resulting in turbidity and chemical changes in drinking water supply. Over-application or improper handling of pesticides or fertilizers may impact drinking water source.	
4	Mines/Gravel Pits	Iron King Mine	East of Springs	Canyon City		Zone 2	Higher	Spills, leaks, or improper handling of chemicals and wastes generated in mining operations or from heavy equipment may impact the drinking water supply.	

Note: Sites and areas identified in this Table are only potential sources of contamination to the drinking water. Environmental contamination is not likely to occur when contaminants are used and managed properly.

(1) Where multiple potential contaminant sources exist at a site, the highest level of risk is used.

(2) See Table 3 for database listings (if necessary).

Parameters Used in the Well Delineation Model

Delineation Method: Analytical Calculated Fixed Radius Enhanced CFR
 Numerical Hydrogeologic Mapping Analytic Element

Pump Rate (Q in gpd): 4600

Source: System Water Resources Dept Comparable Community
 Pump Capacity Population Estimate 90% of Safe Yield

Nature of the Aquifer: Unknown Unconfined
 Semi-confined Confined

Aquifer name: **Columbia River Basalt**

Confining Unit lithology: Clay
Depth to Confining Unit: 170 feet
Confining Unit thickness: 64 feet
Depth to Aquifer: 234 feet

Aquifer Characteristics:

Lithology:

Unknown Sandy Silt Layered Volcanic Rocks
 Sand Sand & Gravel Fractured Volcanic Rocks
 Gravel Cobbles/Gravel Fractured Sedimentary Rocks
 Other: _____

Thickness (b): 29 feet

Effective Porosity (n): 0.23

Hydraulic Conductivity (Permeability): _____ ft/day N/A
 Estimated from lithology Specific Capacity (Well Report)
 Published Report Aquifer Test

Hydraulic Gradient: N/A Flow Direction: N/A
 Published Report Graphical Solution Estimate
 Field Measurements Model Results

Other High Capacity Wells Accounted for: None

APPENDIX F
SITE PHOTOGRAPHS

Rainbow Cleaners – Canyon Blvd. (former) Site Photos



Looking SE at property (June 2009).

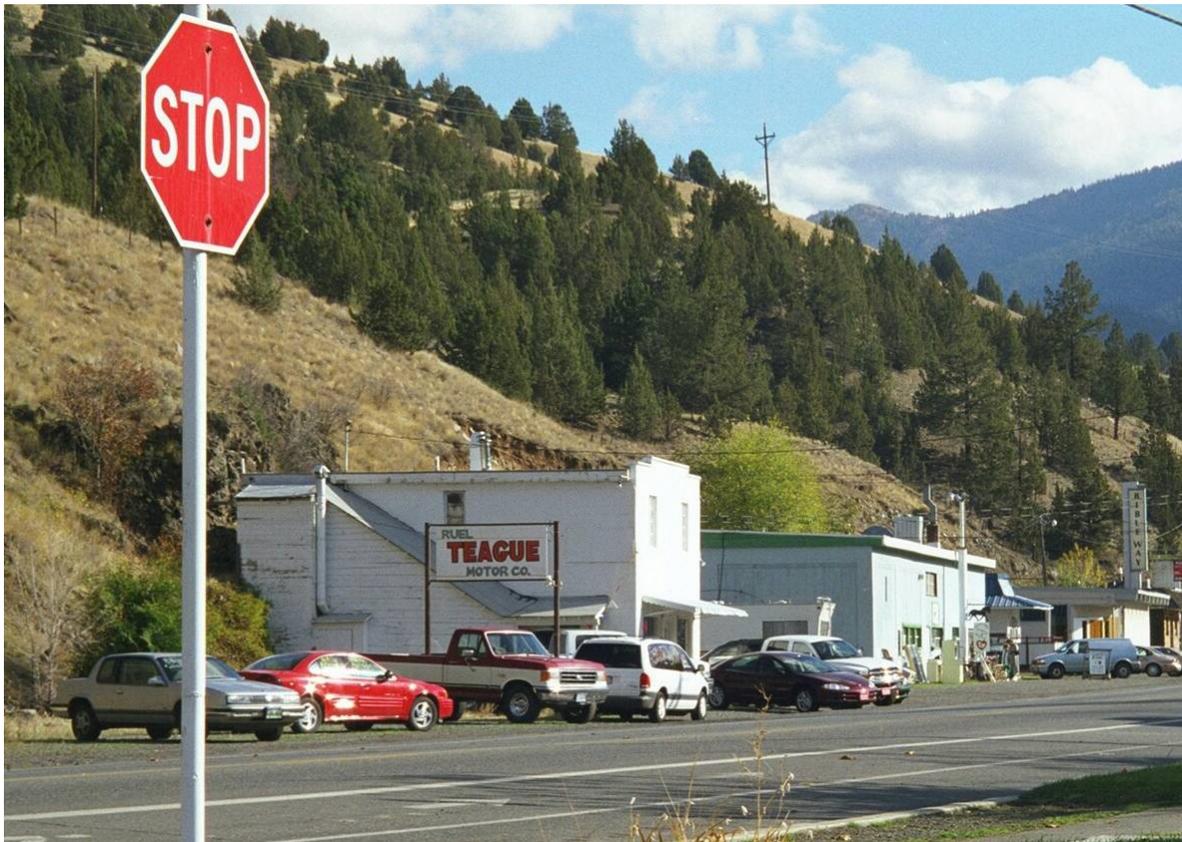


Looking south (August 2011).

Rainbow Cleaners – Canyon Blvd. (former) Site Photos



Looking north at east side (back side) of building. Heating oil AST along east side of building (August 2011).



Looking SE at property when occupied by Ruel Teague Motor Co. (October 2000).

Rainbow Cleaners – Canyon Blvd. (former) Site Photos



Looking south at area of mixed commercial, industrial, and residential use (October 2000).

Rainbow Cleaners – Canyon Blvd. (former) Site Photos



Drilling B-1 (October 2011).

Rainbow Cleaners – Canyon Blvd. (former) Site Photos



Drilling B-2 (October 2011)

Rainbow Cleaners – Canyon Blvd. (former) Site Photos



Drilling B-3 (October 2011)